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40th ANNIVERSARY

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Some Observations on Assisted Coughing of Surgical Chest Cases — WHITE and USSHER

Ultraviolet Radiation in Herpes Simplex — STEELE

Case Reports — BARNHART and WEIDENKOPF

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Volume 41, Number 11 **November 1961**

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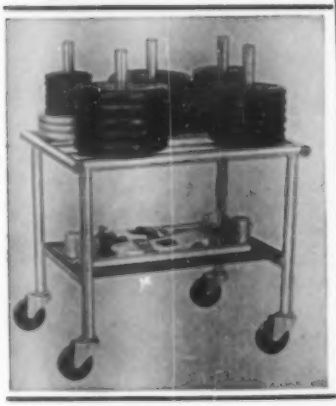

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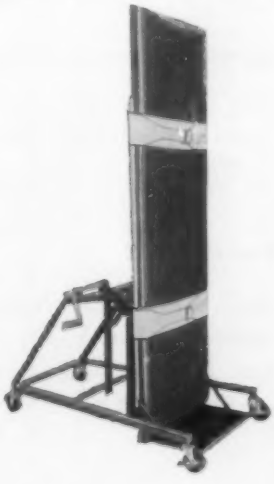

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VOLUME 41 NOVEMBER 1961 NUMBER 11

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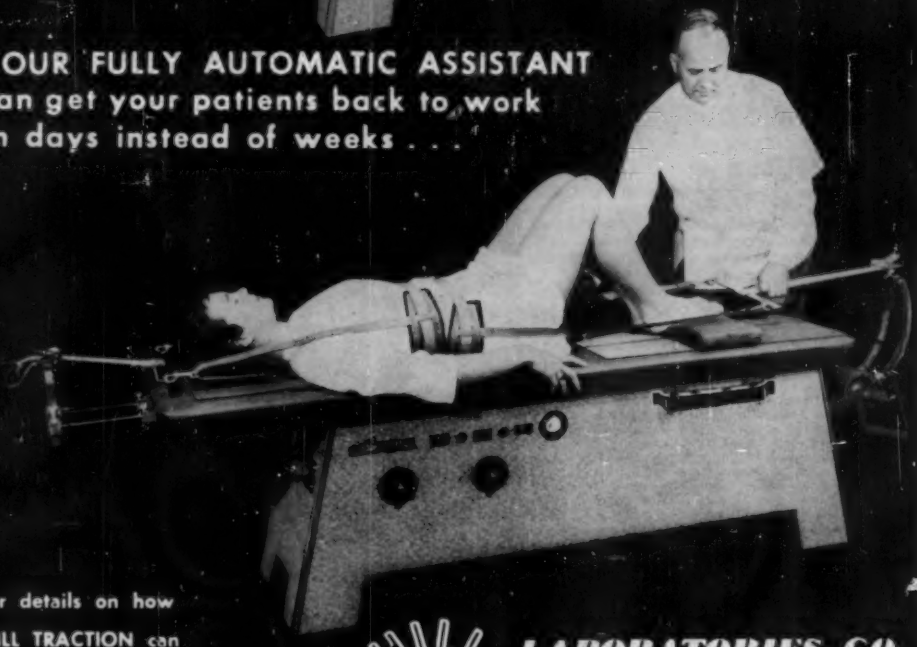

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Frances M. Tappan, B.S., M.A., is Technical Director of the University of Connecticut's School of Physical Therapy, which she established in 1950.

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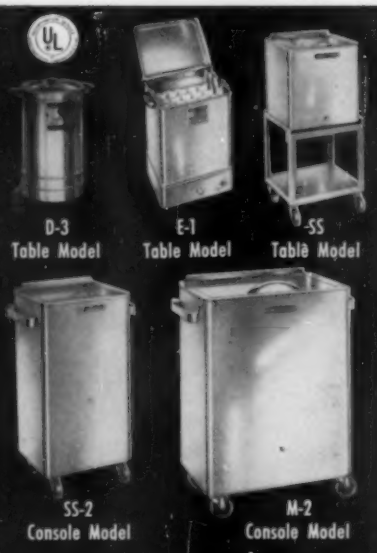

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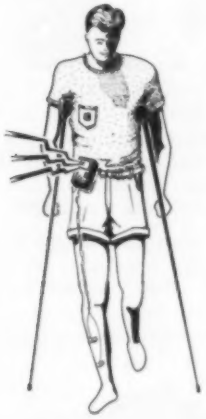

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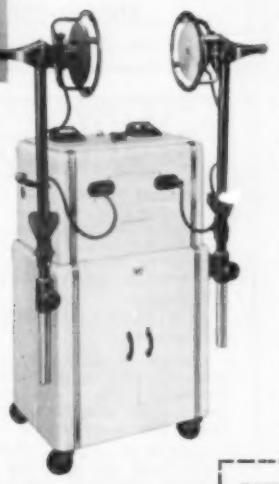

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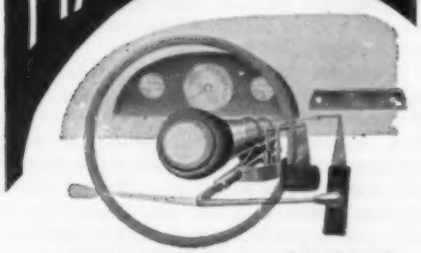

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Yesterday we were having a meeting to discuss the company's annual Thanksgiving gift to our employees. One of our foremen mentioned ". . . it's a good thing the company thinks of a *gift* at Thanksgiving. Between Russia and taxes we don't have much else to be grateful for these days."

My inclination was to agree with him. "Why can't we have life like we used to in the 'good old days'," I thought, "when everything was better, the money you made was your own, no H-bombs, life was worth living . . ." Later in the evening I got to thinking about it again . . . trying to determine just exactly *when* were these days I yearned for. I couldn't help but realize that history is made up of people yearning for the "good old days". . . and that these days almost invariably were just a generation before.

To me, the "good old days" were back in the '20's. And yet I remember my father, in these same '20's saying that times were tough and that he wished things were the same as they had been in the '90's. My grandfather, when I was young, used to tell me tales of the 1860's and 1870's . . . before the tough times of the '90's and after. And, someday, my daughter will think of *this* year as one of her "good old days". . . as she tells her grandchildren about the "good old '50's and '60's."

I suppose it boils down to one thing; each generation, as it is faced with its own problems, secretly yearns for the time when life was less complicated . . . before it had to grow up and meet the challenge which had faced every human being since the birth of time. The circumstances may vary, but the question is always the same: "How can I live *my* life at peace with myself?"

"But *our* case is different" we say. True. Because each generation has to face different sets of problems. But, is paying my income tax worse than starving in the New England of 1620? Is the threat of Russia more immediate to me than an Indian war-cry to a desolate wagon train crossing Wyoming? Were the *half-million* Americans killed in the Civil War any more alive because of death due to "obsolete weapons"?

Yes, our case is different . . . but perhaps its problems are no more real or more frightening than those which have faced every generation of Americans. And, perhaps, the answer is as it has *always* been . . . to face the problems of *now* with courage, so that the problems of tomorrow can be met on their own terms.

Yes, I think I *will* be grateful this Thanksgiving. Grateful to have been born in the greatest free nation in the history of mankind. Grateful that however dismal the future may appear, the solution lies within our determination to *face* our problems with all our experience, strength and hope. Grateful to be able to pray, as Reinhold Neibuhr wrote in 1935: *"God grant me the serenity to accept the things I cannot change, the courage to change the things I can, and the wisdom to know the difference."* Happy Thanksgiving!

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Articles

Medical Aspects of Bronchial Asthma*

Gilbert Lanoff, M.D.†

Bronchial asthma may be defined[1] as a form of obstructive emphysema involving both lungs throughout and characterized by paroxysmal attacks of dyspnea. These attacks are accompanied by wheezing which is chiefly expiratory and heard on auscultation of the chest. It is typically relieved, at least in the early stages of an attack, by sympathomimetic drugs. This symptom complex results from a constriction or narrowing of the lumen of the bronchials as the result of spasm of the bronchial muscles, swelling of the mucous membranes, or both.

Bronchial asthma is only one form of obstructive emphysema, and it is the most common type. It is caused by an antigen-antibody reaction (even though these allergens cannot always be identified in or upon the cells of the bronchial mucosa) with a resultant bronchoconstriction due to swelling of the lining mucosa with retention of bronchial secretions. Dyspnea and wheezing alone are not sufficient to make a diagnosis of asthma because these occur in many other conditions. Bronchial asthma never involves parts of the lungs except when it is accompanied by complications. Buffam[2] states that, in children, expiratory wheezing is not always present and instead loud tracheal rales are heard.

Glaser[1] states that there are certain important differences in the symptomatology of bronchial asthma between children and adults, especially in children under the age of two years. This may be correlated with the fact that the infantile type of respiration, which is chiefly abdominal, changes toward the adult type, chiefly thoracic, beginning with the assumption of the upright position.

The asthmatic infant may be perfectly comfortable even when flat on his back. This is due to the type of normal breathing at this age and the greater softness and flexibility of the thoracic cage. The absence of anxiety on the part of the infant in a severe attack is also in striking contrast to the adult.

Ratner[2] stated that bronchial asthma is always satisfactorily and completely relieved by the administration of a sympathomimetic drug (such as ephedrine, epinephrine). Figures on morbidity and mortality are shown in Tables I and II.

The word asthma has been in use since ancient times. Hippocrates employed it to denote breathlessness. In 1860 Salter was the first to note the association of asthma with animal emanations and to emphasize the importance of the hereditary factor. It was not until 1910, when Meltzer suggested the possible relationship between anaphylaxis and asthma, that the etiology was established.

Statistics as to incidents are variable, and have been estimated between .05 to 3 per cent of the population. About one-third of all patients date the beginning of asthma to the first decade of life and another 50 per cent to the period under the age of forty. No significant difference as to race or social status is noted. There is a greater incidence in males until the age of puberty.

The etiology of this symptom complex arises from the interaction of two factors: (1) constitutional predisposition, and (2) the hereditary effect of adequate contact with the specific allergens.

We know other allergic conditions predispose as atopic dermatitis in infancy is a forerunner of asthma in late childhood. Similarly, untreated hay fever is a forerunner of asthma. Nervous factors, infections, and environmental factors also influence the incidence of asthma. Residence and occupation, as well as season, temperature changes and climate may influence the asthmatic patient.

Exciting factors may be specific or non-specific in nature, as horse dander may produce asthma in patients only sensitive to horse hair, but emotional factors or infections may also bring on an attack and these are considered non-specific. We are all familiar with specific inhalants such as

* Read at the Annual Conference of the American Physical Therapy Association, Chicago, July 1961.

† Chief of Allergy Department, Children's Memorial Hospital, Chicago.

Table I

Deaths From Asthma 1959

Age of patients*	No. of Deaths
0†	31
1	25
2	15
3	9
4	14
5-9	29
10-14	36
15-19	27
Total	4,984

*Ages are stated in years

†Refers to patients under on year of age

trees, grasses, and weeds which produce asthma as well as animal hairs (such as dog and cat epithelium) and house dust which also produce asthmatic attacks. Insect emanations and molds may also produce asthma by inhalation if the patient is sensitive. The ingestion of certain foods and drugs may produce asthma. Physical factors such as heat or cold and non-specific factors such as exhaustion, excitement, fatigue may provoke asthma indirectly.

The following aids are needed by the physician to help him in his diagnosis of bronchial asthma: (1) history and physical examination (the most important aids), (2) roentgenograms of the chest and fluoroscopy, (3) the demonstration of eosinophiles in the mucous secretion of the respiratory tract, (4) complete blood count, (5) laryngoscopy and bronchoscopy, and (6) miscellaneous procedures (analysis of the sputum, sweat electrolyte tests, pancreatic enzymes determination, pulmonary function tests, electrocardiogram, and bronchogram).

In the differential diagnosis of asthma, the physician must rule out conditions which may produce the same symptoms. I will not list the individual conditions (which number over fifty) that can produce similar symptoms, but will mention that the major groups of diseases are infections, congenital anomalies, tumors, foreign bodies, and a group of miscellaneous diseases which includes cystic fibrosis.

After the physician has made the diagnosis of bronchial asthma and a careful history is taken to eliminate as many environmental factors as possible, allergy scratch, intradermal, and conjunctival tests are done to help the physician pin point the etiologic allergens that are causing the condition. If these correlate with the history, the allergist is then able to help eliminate the causes of the condition and give the patient relief.

The allergic constitution of the patient with bronchial asthma never changes. However, he may be free of symptoms if the environmental antigens that cause his symptoms are eliminated from his surroundings and diet, and proper methods of hyposensitization (by the repository or the multiple aqueous method) to the inhalant factors, such as ragweed, are given.

Bronchial asthma in a patient without treatment may lead to chronic emphysema, atelectasis, air in the extrapulmonary spaces, heart disease, spontaneous fractures of the ribs and even deaths, which we have previously mentioned.

The most common complication of long continued bronchial asthma is emphysema. In the adult this results in the typical picture of the barrel chest with the shoulders elevated, the back hunched, and the head thrust forward. Weiser and Fisher have reported good results in the treatment of emphysema by physical therapy by the use of exercise to increase breathing. Diathermy, light therapy and hydrotherapy are of little value in asthma.

The cardinal points of care in the treatment of asthmatic children are: the education of parents, dietary control, environmental control, symptomatic care (acute and chronic), hyposensitization and general medical care.

SUMMARY

Asthma is characterized by wheezing respiration of a paroxysmal nature due to obstruction

Table II

Hospital Admissions for Asthma

Years	No. of Admissions
1936-40	95
1941-45	124
1946-50	258
1951-55	479
1956-60	551

in the smaller bronchioles. Constitutional and environmental factors are important predisposing causes. Specific allergens as inhalants (such as dust, pollens, molds, epidermals) or food and drugs as well as non-specific factors such as bacterial infections, emotions, and physical agents may induce attacks.

The pathogenesis of asthma due to an antigen-antibody reaction is reviewed. The diagnosis depends upon history, allergy tests and clinical trial.

The most common complications are emphysema, bronchial infection, and sinusitis. The symptomatic therapy consists of epinehprine and similar drugs given by ingestion, injection, or inhalation. Aminophylline and steroids are valuable in many patients.

Specific therapy revolves around removal from the diet and environment of all responsible excitents and desensitization with inhalants as dust and pollens. Non-specific therapy as autogenous vaccines and antibiotics are of questionable value.

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3. Rackemann, F. M.: Allergy. A review of literature, 1944 and 1945. Arch. Int. Med., 78:1018, 1959.

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How to Borrow a Print of *The Return*

A complete listing of the film libraries where the Association's latest film is on deposit may be found on page 99 of the February, 1959, issue of the *Physical Therapy Review*. If the library nearest you cannot supply you on the date desired, contact another library near you. If you cannot obtain a copy, an order may be sent directly to the Motion Picture Service Bureau, 1697 Broadway, Suite 1406, New York 19, New York. The service fee is $2.75 and includes postage and insurance one way. The borrower is requested to pay return costs. The Bureau bills, and receives payment from the borrower. In addition to the 38-minute version, there is a TV version running 28 minutes, available from the Bureau at the same fee. There is also a 58-second television spot with sound track, excerpted from *The Return*, available on loan for a service fee of $1.00. *The Return* was chosen by Howard Thompson of *The New York Times* as one of the 10 best nontheatrical films of 1958.

Some Observations on Assisted Coughing of Surgical Chest Cases*

Gloria White, B.S.N.† and Beth Ussher, B.A.‡

"A nurse hangs onto my tongue—the doctor pushes a tube connected to that noisy machine down my nose and into my throat—I gag, choke, cry, can't breathe, vomit—I feel like I'm strangling and when they are through my tongue feels all cut to pieces and I'm completely exhausted."

What is this process the patient is describing? Why is it done? When does one expect to experience such an "ordeal"? These comments are typical of patients' reactions to endotracheal suctioning, which is done to clear the lungs of secretions after thoracic surgery.

The process, the reasons for it, and the patients' reactions to it were summarized as follows after review of the literature,[1-3] and discussion with the medical staff. As the words imply, endotracheal suctioning is the technique whereby a catheter is passed through the trachea into the bronchial tree in order to remove mucous, blood or purulent discharge that may have accumulated there.

A soft rubber catheter (connected to a suction machine) is passed through the nose, pharynx, and glottis into each main stem bronchus. The purpose of this technique is to maintain an open airway. It is primarily a substitute for bronchoscopy. Although it may stimulate the cough reflex, it should not be used as a substitute for voluntary coughing.

The catheter used for suctioning may cause trauma to the mucosa of the trachea and bronchi, especially when used excessively or with very high pressures. Another drawback to the use of the endotracheal catheter is that passing it through the nasopharynx and larynx may transfer bacteria from these areas and foreign matter that may have accumulated on the catheter into the tracheobronchial tree. The introduction of bacteria into the trachea of a patient whose mucosa has been traumatized by surgery and endotracheal suctioning may result in a severe laryngitis, hoarseness and tracheobronchitis.

* This training program was supported in part by Training Grant No. 235-61, Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington, D. C.

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Unless there are specific indications, endotracheal suctioning should never be substituted for the normal vigorous coughing. Only coughing is strong enough to apply sufficient force to remove the mucous plugs, which cannot be reached by the endotracheal catheter, from the segmental and sub-segmental bronchi.

To understand completely how these mucous plugs and secretions accumulate and result in atelectasis, and even pneumonia, one must review the effects of the surgical procedure more closely. As a result of chest surgery, the following three factors pave the way for atelectasis:

1. The first factor is the actual incision and retraction or resection of the ribs.[4] The incision usually runs from the sternum anteriorly, under the nipple and the scapula, and up the back lateral to the spine. Due to severance of the accessory muscles of coughing (the intercostals, trapezius, rhomboideus major and rhomboideus minor, latissimus dorsi, and serratus anterior) the strength of these muscles is markedly reduced. Therefore, patients experience difficulty in coughing unless firm support is applied over the incision.[5, 6] This support serves as a substitute for the muscles by adding mechanical stability to the chest and reducing pain at the surgical site.

2. The second factor encouraging atelectasis is the patient's inability to cough due to the depressing effect on the central nervous system of the anesthetic agent.[4]

3. An even greater hindrance to a good productive cough is the patient's fear of the sharp pain which occurs on movement of the unsupported chest, and the dread of reopening the incision. Therefore, it is easy to understand why patients have difficulty coughing and how infection may develop from an accumulation of secretions and an invasion by bacteria. The latter may be recognized clinically by auscultation of the chest, by elevated temperature, pulse and blood pressure, and confirmed by a cloudy roentgenogram of the lung.

Assisted coughing is a less traumatic method for removing secretions than endotracheal suction. This is being done in some hospitals, but perhaps not done properly or frequently enough.

The assisted coughing method presently in use at the Duke University Medical Center includes a preoperative and postoperative phase.

PREOPERATIVE PHASE

At this time a course of instruction to each patient includes; (1) a demonstration of where the chest incision (thoracotomy) will be made, (2) an explanation of why it will be difficult for the patient to breathe deeply and cough postoperatively, and (3) the reasons why it is essential for him to cough.

During this orientation, the physical therapist shows the patient how his chest wall will be supported. In splinting the patient's chest, the physical therapist places her hands over the intended surgical site, and rehearses the patient in the postoperative coughing technique. As the patient inspires, the physical therapist applies firm arm and hand pressure to either side of the chest so that the patient is assured that the coming forceful cough will have sufficient counter-pressure. This splinting prevents excessively painful expansion of the chest and diminishes the patient's fear of reopening his incision. Thus the proper method of coughing is learned before surgery and its importance to recovery is stressed. The patient is given confidence that the physical therapist or nurse (graduate, licensed practical or student) will be there to assist him postoperatively.

Along with explanations as to how the personnel will assist him, the patient is also given instructions on supporting his own incision. This support can take the form of a towel around his chest, the bed linen, or his own hands bracing the chest wall. These self supportive measures are initiated two or three days postoperatively when the chest tubes have been removed and the patient has become stronger and more independent.

POSTOPERATIVE PHASE

This begins as soon as the patient is responsive. Assisted coughing is then begun. It is now that each member of the health team has a responsibility to the patient. This responsibility includes knowing: (1) when to cough a postoperative patient, (2) how to do it effectively, and (3) what to listen for in a chest full of mucous. Along with this information, ward personnel should be particularly conscious of the chest patient's temperature, since fever can precede atelectasis.

Two methods may be used to assist in coughing. Figures 1A and 1B show one technique of assisted coughing from the anterior and posterior aspects. The first method is done with the patient sitting on the edge of the bed with his feet on a chair and his body tilted slightly forward.[7] Sitting is usually possible within twenty-four hours or when the blood pressure is stable. The physical therapist stands on the operative side and places the hands as pictured in Figures 1A and 1B. If the operative site is on the right, the physical therapist stands on the patient's right side and places the right hand just below the incision anteriorly, and the entire left forearm and hand along the incision posteriorly. The patient is asked to guide the right hand to the place where it will give the best support (patients differ widely in the area that is painful). With the hands properly placed, the physical therapist should be able to give accordian-like pressure to the chest as a patient coughs. The amount of pressure is adjusted to the patient's tolerance and needs. Manual splinting often requires the maximum strength of the person assisting, and though consistently firm, must be gentle and co-ordinated with the cough sequence of the patient.

The second method is used when the first method does not seem to provide sufficient pressure. (Fig. 1C and 1D.) This takes the form of full body support and is done by having the therapist stand on the unaffected side and place one arm under the patient's arm and around the front of the chest toward the affected side, to be met on that side by the other hand as it comes across the back.[6] This could be described as a hugging motion as it exerts equal pressure posteriorly, anteriorly, and laterally. The patient's cough sequence is followed as in the first method.

In either method the sitting position is preferable for the following reasons[7]:

1. The effect of gravity on the viscera permits greater descent of the diaphragm and thus allows more room for chest expansion.

2. The abdominal muscles, which aid in coughing, have a mechanical advantage in this position.

3. The actual movements of the patient in his efforts to get into this position help to loosen the secretions.

If the patient cannot come to the sitting position alone and no one is immediately available he may pull up on a braided rope, strong muslin strip, or cloth restraint, tied to the end of the bed. If necessary, a patient can be coughed while recumbent, utilizing the same hand placement, though it is more awkward for both patient and physical therapist.

Patients are often too weak to cough properly alone during the first three or four days postoperatively, and they may require manual splint-

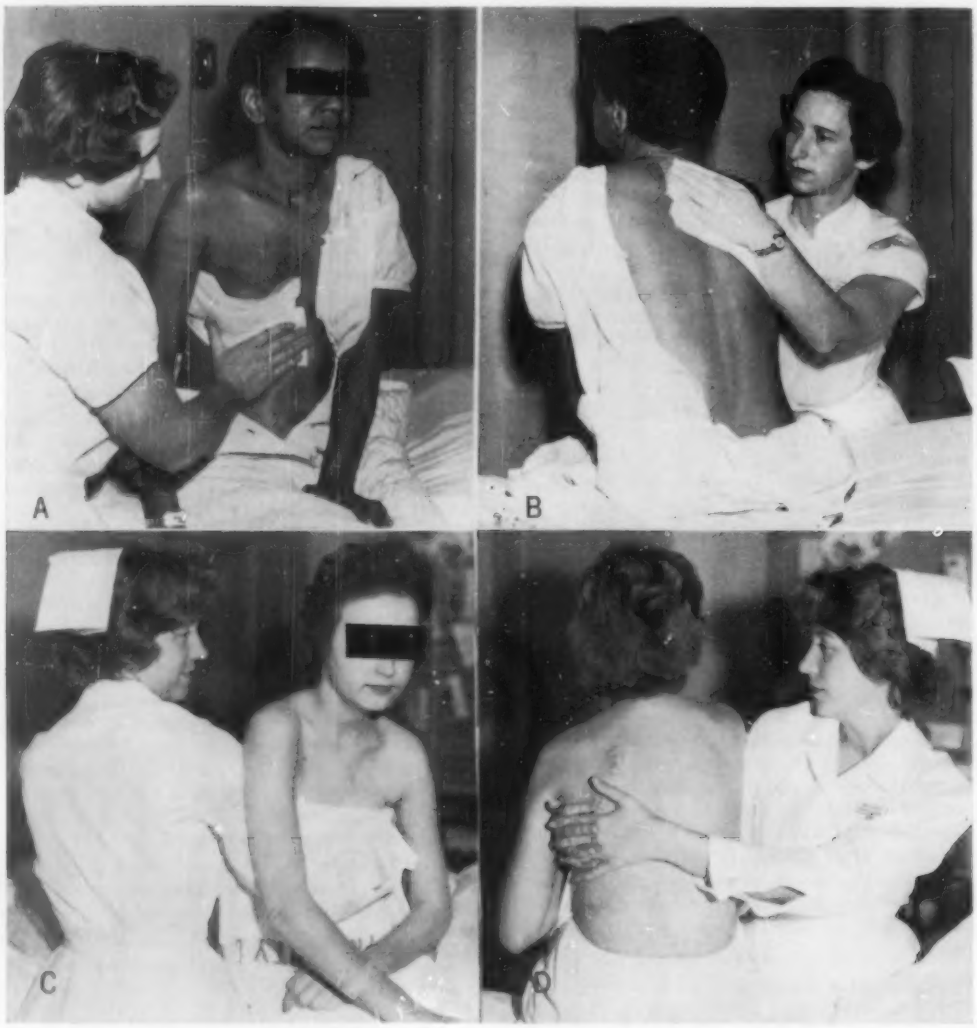

Fig. 1. Assisted coughing of postoperative thoracic patient. A, anterior view with therapist at operative side of patient; B, posterior view with therapist at operative side of patient; C, anterior view with nurse at unaffected side of patient; D, posterior view with nurse at unaffected side of patient.

ing at regular intervals both day and night. The majority of patients can clear their lungs by assisted coughing as well as the lungs can be cleared by suctioning, provided the following assistance is given from the very first postoperative day: (1) pain medication prior to coughing, (2) medicated inhalations to liquefy tenacious secretions and, (3) firm support over the incision during the actual coughing process.

During the past year this manual splinting has been used on over 150 cases of thoracic surgery at Duke University Medical Center. Success in management of these case must be attributed to the co-ordinated effort of the patient, nurse, physical therapist and physician. Each has a responsibility. The patient must co-operate to the fullest degree. The nurse must know the technique of assisted coughing; she must be persistent but

understanding in its application; and she must appreciate the necessity to work closely with the doctor. The physical therapist must give daily preoperative instructions to the patient, teach the nurses assisted coughing, and take the responsibility to manually assist the patient postoperatively. The doctor must interpret pre- and postoperative findings (including roentgenograms) to the patient and staff as well as supervise the treatment.

As a result of our experience and because the medical staff and patients agree that this co-operative approach has succeeded in reducing the need for endotracheal suctioning, it has become our objective to have all physical therapists, nurses and associated health workers learn effective manual splinting techniques in order that doctors will no longer have to rely so heavily on the more traumatic endotracheal suctioning.

For the patient who will not cough, endotracheal suctioning may be the only answer. However, every effort should be made to spare the patient the pain and stress of this procedure.

ACKNOWLEDGMENTS

We wish to thank members of the Department of Thoracic Surgery and the Department of Medical Illustrations, Duke University Medical Center, Durham, North Carolina.

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Ultraviolet Radiation in Herpes Simplex

Major Mada Steele, AMSC*

Herpes simplex is an acute, inflammatory, virus skin disease marked by clusters of small blisters on the skin and mucous membranes, such as the borders of the lips and nares.[1] Commonly referred to as "cold sore" or "fever blister," herpes frequently occurs following high fever, sunburn, or other symptomatic upset. In the majority of cases, the precipitating factor is not known.

The histopathology of herpes simplex is marked by coagulation necrosis in the prickle cell layer of the pars papillaris.[1] Herpes simplex in man is one of the few virus diseases that does not produce a lasting immunity,[2] but is likely to appear from time to time in the same part of the body.

According to Sulzberger and Wolf,[1] and Andrews,[2] laboratory experiments have definitely proven the presence of the causative agent within the vesicle. The virus appears to remain in the body throughout life once infection has taken place. It is evident that many individuals are carriers.[3] This is borne out by the frequent occurrence of herpes simplex following illness or minor injury. The origin of the virus is not known. The course of the disease lasts from one to two weeks.[2]

Initial symptoms are edema, itching, burning, followed in the course of a few hours by the eruption of clusters of blisters. The vesicles at first contain a clear fluid which later becomes seropurulent. After a few days, the blisters rupture and the dried serum forms a flaky crust. Epithelization must take place under this crust to complete the healing process.[1, 2]

A variety of treatments is described in the literature. Wet soaks of aluminum acetate,[2, 3] wet dressings of tannic acid with iodine and glycerin,[1] zinc oxide paste,[3] powdered boric acid,[1] and camphor ice[4, 3] are recommended. In severe cases roentgen rays may be used. A series of smallpox inoculations have been advocated as prophylactic therapy in patients giving a history of recurrent attacks.[2, 4] Stratton states that there is no specific treatment. Of the authorities[1, 6]

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Table I

Distribution of Age

Age*	No. of Patients
0 - 5	4
6 - 10	15
11 - 20	3
21 - 40	60
41 - 50	18

*Age stated in years

Table II

Probable Cause and Treatment Response

Probable Cause	No. of Patients	Results after 24 hours	
		Inactive*	Worse
Exposure to elements†	16	16	
Fever	6	6	
Unknown	78	77	1

*Not spreading, dry, no longer painful, reduced edema
†Sun and/or wind

Table III

Treatment Data and Response

Time Lapse from Onset to First Treatment*	No. of Patients	Results of Treatment	
		Good	Poor
0	1	1	0
1	24	23	1
2	48	48	0
3	18	18	0
4	7	7	0
5	2	2	0

*Time stated in days

studied, none recommended the use of ultraviolet irradiation. Bierman[5] and Krusen[6] list herpes simplex as one of the contraindications to ultraviolet therapy, stating that it might cause exacerbation.

PURPOSE AND METHOD

The purpose of this study was to determine the effect of ultraviolet radiation on the herpes lesion. The subjects for this study were 100 patients who had lesions diagnosed as herpes simplex for which ultraviolet radiation was prescribed. All of these patients were referred to the Physical Therapy Department by the staff dermatologist. Of these 100 patients fifty-seven were male, forty-three female. The age range was from ten months to fifty years (Table I). The patients were given from one to three exposures of ultraviolet radiation. One treatment was considered sufficient in the majority treated. A second treatment was given three patients when all the blisters did not appear to be completely dry the following day. The study continued over a period of five months.

An attempt was made to determine the precipitating factor by questioning the patients as to history of fever, sunburn, or other injury. In seventy-eight patients, no precipitating factor could be determined. Six patients had a history of recent fever. Sixteen patients reporting with herpes simplex had severe sunburn at the time of onset. Although perplexing and appearing to be paradoxical, these sunburned patients responded favorably when treated in the same manner as other patients with herpes simplex, and exacerbation did not occur in any case.

During the treatment by ultraviolet radiation, exposure was confined to the area of the lesion by covering the surrounding surface with towels. Duration of the initial exposure was twice the minimal erythema dose. This dose was considered to be safe since the lesions were generally located on mucous membrane which tolerates a longer exposure than other areas.

In this series, a large stand-supported air-cooled lamp was used on external lesions. (However, in subsequent cases, it was found that the small ultraviolet lamp for local applications was more convenient and practical for most lesions). In all cases of herpes inside the mouth, a contact treatment was given using the small lamp with applicator. The minimal erythemal dose on this lamp was considered to be 5 seconds at contact. On the first treatment lesions inside the mouth were given 10 seconds. Where the large standing lamp was used, the minimal erythemal dose was considered to be 15 seconds at 30 inches. The dose initially given in this series was 30 seconds at 30 inches. Results as shown in Table II were good in ninety-nine of 100 patients.

This and subsequent studies using this form of treatment have demonstrated the value of early recognition and treatment of herpes simplex. Patients treated prior to vesicle formation appeared to have had the herpes aborted within one or two hours without the formation of vesi-

cles. In those who reported on the first day after onset, the symptoms were usually relieved within twenty-four hours. However, when vesicles have been present longer and there has been damage to the skin or mucous membrane, time for epithelization must be allowed before all visible signs of the lesion will disappear. The few patients who were treated the fourth or fifth day after onset consistently stated that they were free of pain the following day. However, the latter cases are difficult to evaluate because they may have run their course before reporting for treatment. Table III shows time lapse between onset and first treatment.

CASE REPORTS

Case II. Herpes followed malaria in this patient who had blisters covering the entire upper lip with two clusters of vesicles on the lower lip. He was given one treatment of ultraviolet radiation using two minimal erythema doses, 30 seconds at 30 inches. On the following day, the blisters were dry and crusted. The patient stated that the area was free of pain. No further treatment was required.

Case III. Herpes followed sunburn. The patient had vesicles on his lips and on the right side of his face covering an area 2 inches by 1½ inches. Twenty-four hours after treatment, with 30 seconds ultraviolet at 30 inches, all blisters were dry except for one cluster on the lips. This area was given a second treatment of 45 seconds at 30 inches and was dry and asymptomatic the following day.

Case XV. The patient had herpes vesicles of unknown origin covering his lower lip and entire surface of the chin. The chin was extremely swollen; the entire area was acutely painful. Twenty-four hours after treatment with ultraviolet, there was no visible change. However, the patient stated he had complete relief from pain. A second treatment of 45 seconds was given. The following day, blisters were dry and there was marked reduction of edema. No further treatment was given.

Case XXV. Small herpes vesicles of unknown origin were present on the lips, and the patient complained of many lesions inside the mouth, which made eating extremely painful. The local ultraviolet lamp was used with applicator to the lesions inside the mouth. Twenty-four hours later, the patient reported the entire area was free from pain.

Case XXXIV. A five year old child had herpes lesions of unknown origin over her entire buttocks. Since it seemed inadvisable to give twice the minimal erythema dose to so large an area, a minimal erythemal dose was used with complete relief in twenty-four hours.

Case LXI. An Army nurse who was subject to recurrent herpes was able to recognize the symptoms of herpes that preceded the visible lesion. Therefore, she was referred to physical therapy as soon as possible, usually just before or as the blister was becoming visible. Each time the herpes was aborted and did not develop beyond that stage.

SUMMARY

One hundred patients with herpes simplex were treated with ultraviolet light using twice the minimal erythema dose. Ninety-nine of these patients showed marked improvement within twenty-four hours. Since other forms of treatment offer little relief from symptoms and it is generally accepted that herpes simplex will last from seven to fourteen days, it is thought that treatment by ultraviolet deserves consideration.

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There is no fact more observable in literature than how many beautiful things have been said about man in the abstract, and how few about men in particular.—L. ESTRANGE, *J. Internat. Coll. Surgeons*, 35:383, April 1961.

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Case Reports

Arsenic Neuropathy*

Dorothy Barnhart† and Sally A. Weidenkopf‡

Early in the present century lesions of peripheral neuropathy from arsenic were a common occurrence, since dyes, wallpaper, paint and insecticides contained large quantities of this chemical. In recent years, however, exposure to it has been greatly reduced.

There is very little in the literature about the effect of arsenic on muscle power; most of the sources deal with the changes in organs, nerves, and skin and with the drugs used to combat the effects of this poison. One good source of information is a study by Heyman et al.[1] These investigators found that arsenic neuropathy had a rapid progression, with severe involvement of the upper extremities as well as the lower, in contrast to diabetic neuropathy which rarely affects the upper extremities and in which trophic changes are common. They also described linear white bands on the fingernails in 50 per cent of the patients with arsenic neuropathy. The authors pointed out that the possibility of arsenic neuropathy should be considered in the case of all patients with symmetrical nerve lesions who reside in rural areas where insecticides are used. Orchardists, in the habit of eating apples sprayed with arsenate of lead, were found to have ingested as much as 6.8 mgm. of this chemical daily and to have excreted 2.4 mgm. in a twenty-four-hour urine specimen. Of interest was the finding that as little as 30 mgm. of arsenic can be fatal.

Heyman and his associates found the following signs and symptoms: soft pitting edema, irritation of the mucous membrane, optic neuritis, diplopia, a decrease in the sensation of touch, pain and temperature, impaired vibratory and position sense, ataxia and a positive Romberg sign. Polyneuritis with weakness and severe paresthesia of the extremities was the most common complaint.

The purpose of this report is to present the results of an intensive program of physical therapy in a case of arsenical neuropathy in which marked neurological findings were present.

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Case Report

On May 10, 1959, the patient, a thirty year old female, ingested a large quantity of arsenical insecticide. Forty-five minutes later she was hospitalized and her stomach was pumped. Nevertheless, three days later she developed severe pains "inside and outside of both hands, like a vise stretching them tight and some one turning the screw." The symptoms extended approximately to the junction of the middle and distal sections of the forearm, while numbness was present from the hands to the elbows and from the feet to the inguinal regions. Gross shaking motions of both hands began about the same time as the pain. The patient was unable to stand on her feet without looking at them. There was also severe hyperesthesia of the hands and feet.

On June 22, 1959, about six weeks after the onset of the illness, the patient was seen in the Department of Physical Medicine and Rehabilitation. Examination at this time revealed fuzzy outlines of the discs; the pupils reacted to light and accommodation. Facial muscles showed no weakness; tongue tremor was present with slight deviation to the right. Deep reflexes were absent, while superficial (abdominal) reflexes were hyperactive; pain sensation was increased, especially in the extremities. There was complete loss of proprioception, vibratory sensation and stereognosis. She demonstrated a positive Romberg and was ataxic. She also had linear white bands on her fingernails.

A general muscle test was done. The neck, trunk and proximal muscles of the extremities were within normal limits. The muscles of the forearm and hand were graded Good (G) to Fair (F). The muscles of the legs and feet tested G to Poor (P). The weakness in both upper and lower extremities was more severe in the distal parts.

Treatment was initiated the day after the preliminary examination. The prescription consisted of Hubbard tank for underwater exercises, Frenkel exercises, and re-education of weak muscles, with progression to ambulation. During hydrotherapy the turbines were turned low because of

the patient's hypersensitivity. The speed was gradually increased as her tolerance improved. She liked the treatment and within a month could enjoy a sedative massage following the underwater exercises. However, the hands and feet continued to be hypersensitive so that massage to these parts could not be tolerated.

Standing and ambulation were attempted during the first week of treatment. Improvised splints were substituted for dorsiflexors of the feet. However, it took two people to support the patient because her numbness, lack of position sense, weakness and poor co-ordination all combined to make standing and walking very difficult tasks. After three weeks she was able to walk between parallel bars unassisted but had to be reminded constantly which hand and foot to use.

Throughout the month of July, 1959, the muscle power in all extremities decreased. A repeat muscle test at the end of the month showed complete loss of power in the ankles and feet and in the intrinsic muscles of the hands. The hamstrings and quadriceps, which had been graded F to G a month previously, had now dropped to P and P+. The muscles of the elbows remained in the G status and the wrist flexors and extensors dropped from G to P.

On July 27, 1959, about three weeks after the institution of physical therapy, bilateral below-knee braces were ordered. It was believed that the muscles about the knees, although weak at this time, would recover so that long leg braces would not be necessary.

In the fourth month, treatment in the Hubbard tank was discontinued and in its place swimming was ordered; the latter proved to be very successful, since the patient could exercise independently and without discomfort. By this time sensation was returning in both upper and lower extremities and the pain was less severe. Her balance and co-ordination were also improving and she had begun to show a definite increase in muscle power in both upper and lower extremities.

Activities of daily living were practiced from the beginning of treatment along with the patient's other activities. By October she was able to get on and off the toilet and a low chair. She had progressed from walking in parallel bars to a walkerette and now was using Lofstrand crutches. She could dress herself except for managing the buttons. The lumbricale and interossei muscles had begun functioning again and the patient was taught to feed herself with the aid of padded handles on the knife and fork.

In the fifth and sixth months of treatment the patient ambulated for short periods without her braces, but for the most part they were worn during the first eight months of therapy. The right lower extremity improved more rapidly than the left in the medial and lateral muscles of the ankle and the brace to the right foot was removed first. The right foot, nevertheless, remained weaker than the left in the muscles supporting the arches and the toes.

By February 1960, all the involved muscles, except the flexors of the toes, had improved to a status of F to G. For the next four months treatment was concentrated on the dorsiflexors of the feet, the extensors and flexors of the toes and the intrinsic muscles of the hands. Electrical stimulation (interrupted galvanic current), which had not been used earlier, could now be tolerated as an aid to re-educating the dorsiflexors of the feet, the flexors of the toes and the intrinsic muscles of the hands. The muscles of the hands responded much more readily than did those of the feet and by May 1960, were graded F+ to G while the flexors of the toes remained in the P category.

Because the patient had previously been a typist, she was assigned to typing reports and histories. She soon regained her former efficiency in this work and by June 1, 1960, had obtained a full time position in an office as a stenographer.

In March of 1961 the patient was recalled for a muscle test. The upper extremities were G+ to Normal (N). The lower extremities tested G to N except for the following: the anterior tibial and the extensor hallucis muscles were graded F bilaterally, the flexor digitorum on the right and the lumbricales bilaterally were P and the flexors hallucis on the right tested Trace (Tr).

The patient must still wear low heeled shoes, with the right one well padded under the metatarsal arch. Aside from that she needs no aids except for a cane which she uses only on the street. She has a tendency to slap the forefoot when she walks fast, but otherwise her gait is normal. She has been on a home exercise program, but unfortunately, there has been little improvement in the right foot since June, 1960.

COMMENTS

It is interesting to note that the hands, which we felt for a time would be the patient's greatest disability, have become practically normal while the feet still have residual weakness. It remains to be seen how much improvement there may be in the feet.

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Suggestions from the Field

Easy Traction-Aid for Cervical Arthritis

Ellen G. Wattay, B.S.

This device was developed by a patient who has suffered with cervical arthritis for many years. He uses it with much relief and has given permission to describe his suggestion with the addition of a few ideas for improvement. (Fig. 1.)

A piece of plywood board of ¼ inch thickness is cut to the width of the bed, and may be 3 feet to 5 feet in length. The frame is also cut of ¼ inch plywood to the width of the bed. The side structures should extend from the bottom of the springs to approximately a foot above the top of the mattress. Two small pulleys are attached to the cross structure, about one foot apart, centered, and allowed to drop below the board. Two ordinary shelf brackets are used to attach the frame to the plywood board. Light weight cord is extended over the pulleys to a weight bar just above floor level, and to a Sayre head sling (or the like), at a level to give proper traction.

The weights may be laced to the bar if the bed is low making it inconvenient to hang them freely and maintain proper balance. Weights may be constructed from canvas bags filled with "shot" of a desired measure, and sewn to the bar with a heavy nylon thread. Weights manufactured by the Elgin Exercise Appliance Company may be used. The manufactured weights may be attached to the bar by means of a heavy cord or fishing line drawn through the center hole. This type of weight should be used only when the bed is high enough to permit their properly clearing the floor.

If the board between the mattress and the springs is short, the device may be carried on trips and used on any "Hollywood" type bed. If there is a tendency for the frame to tilt, it may be fastened to the lower edge of the springs. Most box springs have a wooden frame and uprights can be screwed to it.

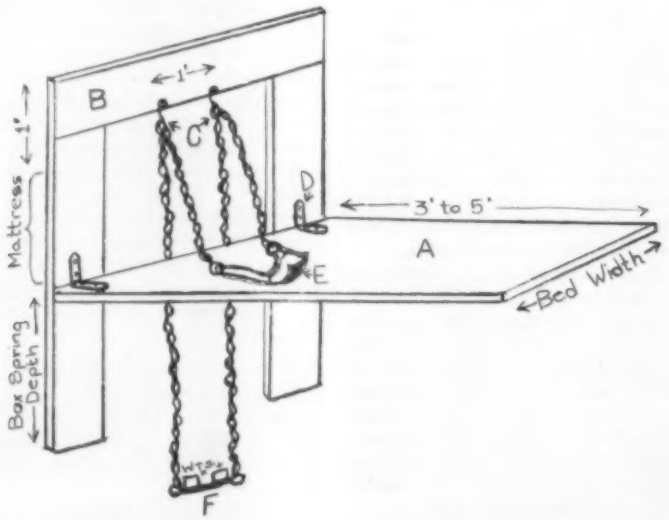

Fig. 1. A, plywood board; B, frame (cut to fit bed); C, pulleys; D, shelf brackets; E, Sayre sling; F, weightbar.

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Editorials

You Are Organized Physical Therapy

"You are Organized Medicine" is the title of an editorial originally published in *Chicago Medicine* and reprinted in the July 24 issue of *AMA News*. This is a well written editorial the thoughts of which can be applied directly to physical therapists simply by substituting "physical therapist" for "physician" and "physical therapy" for "medicine." There is no need to distinguish between the practice of medicine and the practice of physical therapy because the editorial is *about* "the administrative type of organization which is the voice of the practicing medical profession." To physicians the "administrative type of organization" is, of course, the AMA. To us, it is the APTA.

Because many of our readers may not have read the editorial, we quote the "meat" of it. "It is often a tendency of those who do not hold office or do not devote time or effort to their local or national organizations to deprecate the efforts and decisions of their elected officers. There are even those who claim that there is no such thing as a voice of organized medicine. What these people do not realize is that they themselves are organized medicine by virtue of belonging to the organization whose duly elected officers speak for them.

"We all have a right to criticize. This is a democratic right. But by the same token our criticisms should not impair our loyalties. Every American need not always agree with the political party nor with the president elected by the majority, but this disagreement does not lessen his patriotism nor his basic allegiance to his country. Nor should it lessen the respect due those elected to high office.

"So it should be with medical organizations. We are members of local and national administrative medical organizations. These organizations are necessary for representation of each of us on the national scene. Their business is to represent you and me—every one of us—in the practice of medicine. You and I, then, are organized medicine only insofar as we participate in the affairs of our organizations.

"Do not stand off and talk of organized medicine as if it were some isolated clique of policy-making whip snappers.

"*You* are organized medicine."

Our professional group can take consolation, perhaps, in the fact that physical therapists are not alone in their need to understand and support their professional organization. Through the years we, too, have urged members to be truly active members. The need continues and will continue. The "voice" of the physical therapy profession will say what you want said *if* you speak where you can be heard—through your district, your chapter, and your House of Delegates.

Original Papers for Conference

Members of the Association who have been working on special projects, related to physical therapy procedures: research (clinical or laboratory); reviewing results achieved with a group of patients; adaptation or application of new methods of treatment; or any other subject which will advance the profession, should plan now to report their work in San Francisco next July.

Two copies of manuscript, typed (double spaced), should be submitted to Dorothy E. Voss, Editor-in-Chief, *Physical Therapy Review*, by March 31, 1962. The *Review* Editorial Board will select papers to be read by members and has the prerogative of publishing those papers selected. Members will be notified of the Board's decision not later than April 25.

Notice of Name Change

In January 1962, beginning with Volume 42, No. 1, *The Physical Therapy Review* will officially become the *Journal of the American Physical Therapy Association*. The change of name is the result of House of Delegates action in 1960 and subsequent action in 1961 by the Editorial Board and the Board of Directors.

The *Journal* will have a newly designed cover although it is planned to retain the color combination of blue and white as has been used with the *Review* since June 1956. The dimensions of pages will remain the same.

Appropriate and necessary notification is to be given to the U.S. Post Office, New York, N.Y.; the Copyright Office, Library of Congress, Washington, D.C.; Index Medicus, National Library of Medicine, Washington, D.C.; and to agencies with whom the Association has official relationships. Readers are urged to promptly adopt the new name and to use it in correspondence as well as in conversation.

New Advertising Representative and Exhibits Manager

The Association has entered into an agreement with Charles B. Slack, Public Ledger Building, Philadelphia, whereby Mr. Slack will be the Association's representative for advertising and exhibits. Mr. Slack's name as advertising representative will first appear in the first issue of the *Journal of the American Physical Therapy Association* in January 1962.

Charles Slack received the bachelor of science degree from Rutgers University in 1952. Following graduation he served for two years as First Lieutenant with the United States Far East Air Forces in Tokyo. Mr. Slack for several years was employed as advertising representative with *The American Journal of Nursing* and since 1954 has been engaged by several journals as publisher's representative in the solicitation of advertising.

Mr. Slack replaces Gordon Marshall who represented the Association for ten years, 1951-1961.

Letters to the Editor

I was interested in the S.O.S. excerpts from the September, 1921 *P.T. Review* in the August issue of *The Physical Therapy Review*, on page 616. So was my chief, for he is the same Dr. O. L. Miller whose advertisement led the list. Miss Elizabeth Wells who was advertising then for a job in Boston accepted a position in Charlotte in 1924 with Dr. Miller. She was installed in his private office and I at The North Carolina Orthopaedic Hospital at the same time. He had not had a personal interview with either of us, but figured from our correspondence that I was too young to be turned loose in the big city! For five years he kept me under his eagle eye in Gastonia—and taught me all I know about orthopedics. Since then I have been in his private clinic in Charlotte. That is some kind of record, I feel sure.

MARIA M. KENNEDY
Chief Physical Therapist
The Miller Clinic
Charlotte, North Carolina

Coming Meetings

Nov. 6–8	American Occupational Therapy Association, Sheraton-Cadillac Hotel, Detroit
Nov. 6–10	American Hospital Association Institute for Physical Therapists, Deauville Hotel, Miami
Nov. 9–11	American Academy for Cerebral Palsy, Chase and Park Plaza Hotels, St. Louis
Nov. 13–17	American Public Health Association, Cobo Hall, Detroit
Nov. 17–21	National Society for Crippled Children and Adults, Denver-Hilton Hotel, Denver

Association News

Margaret Campbell Winters, President of the American Physical Therapy Association from 1932-1934, died on August 19, 1961. She attended the University of Georgia and graduated from the Presbyterian School of Nursing in New York which was followed by physical therapy preparation under the tutorage of Dr. Robert Lovett in Boston. Mrs. Winters had an interesting four year period in Uruguay as a physical therapist. Upon returning to the United States she joined the staff at the Lakeside Hospital in Cleveland. From 1930 to 1945, she was the Director of the Physical Therapy Department at the University of Chicago Clinics and very active in Association affairs. In 1946 she became instructor at the Vanderbilt University School of Nursing in Nashville, Tennessee. Mrs. Winters was known not only in the area of nursing and physical therapy but in the field of art. Some of her paintings won awards. She was the author of several articles which have appeared in *The Physical Therapy Review*. *Protective Body Mechanics in Daily Life and in Nursing*, a manual for nurses, originally published in 1952 was revised in recent months. At the time of her death, Mrs. Winters was a member of the Tennessee Chapter of the American Physical Therapy Association.

Belle Soltz died in New Orleans on July 6, 1961. A native of Mississippi, she received preparation in nursing at Touro Infirmary and physical therapy preparation at the Harvard Medical School, Courses for Graduates. Miss Soltz had been associated with the physical therapy department at Charity Hospital for many years except for an appointment at the Scottish Rite Hospital in Dallas from 1940 to 1942 and service during World War II from 1943-1946. She became a member of the American Physical Therapy Association in 1934 and at the time of her death was an active member of the Louisiana Chapter.

District of Columbia Physical Therapy Practice Act

On September 22, 1961 President John F. Kennedy signed S.1762 thereby providing that no person shall practice physical therapy in the District of Columbia unless the requirements of the law have been fulfilled. The law will be administered by the Commissioners of the District of Columbia who may delegate "to their designated agent or agents, any of the functions vested in them by this Act." The law also provides that the Commissioners may establish a physical therapists' examining board to be composed of "such persons possessing such qualifications as the Commissioners shall determine." The Act becomes effective one-hundred twenty days after funds are appropriated.

The Board of Commissioners of the District of Columbia submitted the drafted bill on April 25, 1961 accompanied by a statement that "The bill has the approval of the District of Columbia Chapter of the American Physical Therapy Association, the Medical Society of the District of Columbia, and the Department of Public Health of the District of Columbia."

Identical bills were finally introduced in the United States Senate (S.1762) by Senator Alan Bible (Nevada) and in the House of Representatives (HR.8984) by the Honorable Joel T. Broyhill (Virginia). The Senate bill (S.1762) was passed by the Senate on September 1 and by the House of Representatives on September 11, 1961.

Members' Publications

John B. Allis, United States Public Health Service, is the author of "The Use of Paraffin in Leprosy," published in the July 1961 issue of *The Leprosy Review* (London).

He reminds me of the man who murdered both his parents, and then, when sentence was about to be pronounced, pleaded for mercy on the grounds that he was an orphan.—LINCOLN, *J. Int. Coll. Surg.*, 35:619, May 1961.

Summary of Meeting of House of Delegates—July 4-6, 1961

The 17th annual meeting of the House of Delegates of the American Physical Therapy Association convened and conducted its business during three meetings at the 38th Annual Conference held at the Palmer House, Chicago, Illinois. Delegates from fifty-one chapters carrying a total of 306 votes were duly registered. Chapters not represented were Alaska, Hawaii, Montana, Rhode Island, Wyoming and Utah.

Mary E. Kolb, Speaker of the House presided. In conducting the business, she was assisted by Dorothy R. Hewitt, Second Vice President; Jean C. Bailey, Secretary; and Mrs. W. Glenn Suthers, Parliamentarian.

Preceding the opening of formal business, the Speaker read the names of Association members who have died within the past year, while the House paid respect by standing for a moment of silence.

A committee composed of Anna J. Janett, a member of the Northern California Chapter and Margaret L. Moore of the North Carolina Chapter, with Jean C. Bailey, Secretary, to serve as Chairman, was appointed to edit the minutes.

Charles Dorando, Michigan Chapter, was appointed Chief Teller. Betty Nichols, Georgia Chapter, and Kenneth Brown, Indiana Chapter, completed the committee to officiate at the election.

The report of the Nominating Committee was presented and the candidates were introduced by its Chairman, Ruby Decker. At the close of nominations, the Speaker instructed the Delegates on election procedures and the mechanics of voting.

Jean C. Bailey, Secretary, reported on Association business as transacted by the Board of Directors for the year June 1960—June 1961 and gave the summary report of data as submitted by the chapter and district secretaries.

Anthony J. DeRosa, Treasurer, presented the Finance Committee report, the Treasurer's report and a composite report of the chapter and district treasurers' reports.

Other reports presented were: the Conference Program Committee by Lois Wellock, Chairman; the Judicial Committee by Clara Arrington, Chairman; the *Review* Editorial Board by Lt. Col. Barbara Friz, Chairman. A report of the activities of the Physical Therapy Fund, Inc., was given by the President of the Board of Directors of the Fund, Elizabeth Addoms. All the above reports and those of the officers were placed on file for publication in the official journal of the Association.

The National Office Staff Consultants, introduced by the Executive Director, Lucy Blair, participated in a panel presentation, high-lighting various activities of the year; discussing projects which were being developed; and enlarging upon the Annual Reports 1960-1961 which had been presented to the delegates.

COMMITTEE ON STUDY OF THE APTA

The committee of three elected by the Board of Directors to study the APTA presented the report of their activities with their recommendations to the Board of Directors at the June 1961 pre-conference meeting. Because of many factors in the proposed reorganization of the Association and because many decisions had to be made in the post-conference board meeting, a member of the board presented the following statement to the House at this session:

"In June 1960 recommendations made by the Committee on Study of the APTA and accepted by the Board of Directors regarding National Office operations were presented to the House of Delegates. These recommendations are being carried out to the satisfaction of the Board.

"It was agreed to continue the study through 1960-1961. The Committee has presented a report to the Board which is vast in scope and which suggests guiding principles for the reorganization of the Association. With the mutual agreement of the Committee and the Board this brief statement of the progress is presented:

"Specific recommendations have been made to meet the immediate need for reduction in the proposed 1961-1962 budget. These have been endorsed by the Board of Directors and considered action is being taken.

"The proposed reorganization will place upon the membership an increased responsibility for more active participation in the Association and will provide a framework for better communications between the membership and the Board of Directors."

CERTIFICATION OF PHYSICAL THERAPISTS

President Agnes Snyder reviewed the meetings of the representatives of the American Physical Therapy Association, the American Registry of Physical Therapists and the American Congress of Physical Medicine and Rehabilitation and the resolutions which each group had presented and which had been circulated to the membership. The new developments which were reported were: the conference with the APTA representatives requested by the Chairman of the Committee on Allied Health Professions and Services of the American Medical Association's Council on Med-

ical Education and Hospitals on May 8, 1961; and the breakfast meeting, requested by the Executive Committee of the Council on Medical Education and Hospitals on June 26, 1961. This last meeting was attended by three representatives of the APTA, representatives of the Congress of Physical Medicine and Rehabilitation and the Council's Committee on Allied Health Professions and Services. Following the breakfast meeting the Board of Directors of the APTA received a statement from the Council on Medical Education and Hospitals to the effect that the Council proposed "to establish and convene immediately an *ad hoc* committee, with membership composed of representatives of the Council on Medical Education and Hospitals, the American Congress of Physical Medicine and Rehabilitation, the American Physical Therapy Association, and other agencies which may be expected to make a significant contribution, for the purpose of reaching an agreement on the organization, structure, function, and operation of an independent national agency or registry for certification and registration of physical therapists. The Council intends that the *ad hoc* committee have preliminary recommendations available for consideration by the parent bodies by January 1, 1962, and the final document acceptable to the parent bodies be completed by June 1, 1962".

At the request of the Council on Medical Education and Hospitals and with the approval of the Board of Directors of the APTA, the officers of the House of Delegates extended an invitation to the Council on Medical Education and Hospitals to send a representative to the House to present the complete statement and supporting information for consideration. Dr. C. H. William Ruhe, Assistant Secretary of the Council, presented the complete statement of the Council and answered many questions posed by the delegates regarding the composition of the proposed *ad hoc* committee; the Council's opinion on the need for national certification and registration of physical therapists; and on an independent certification board. The delegates were fortunate to have Dr. Ruhe present the information and opinions and to state the Council's position in this matter.

The following resolution approved by the Board of Directors in January 1961 and circulated to all chapters for deliberation and instruction of delegates was passed by the House:

Whereas, The two resolutions regarding the constituency of the Board and the activities of the American Registry of Physical Therapists as presented by the Board of the American Registry of Physical Therapists and the Board of Governors of the American Congress of Physical Medicine and Rehabilitation, in co-operation with the Board of Governors of the American Academy of Physical Medicine and Rehabilitation, do not meet the needs of physical therapy and cannot be accepted by the American Physical Therapy Association; and

Whereas, The resolution as adopted by the House of Delegates of the American Physical Therapy Association in June 1960 was not accepted by the representatives of the American Congress of Physical Medicine and Rehabilitation and the American Registry of Physical Therapists, and communications between the American Physical Therapy Association, the American Registry of Physical Therapists, and the American Congress of Physical Medicine and Rehabilitation over the years have not been successful and, again, in 1960, an impasse has been reached; therefore, be it

Resolved, First, That the American Physical Therapy Association discontinue official relationships with the American Registry of Physical Therapists at this time; second, continue the established relationships with organized medicine; third, continue to actively support prescriptive relationships between physicians and physical therapists, in the best interests of patient care; and, fourth, explore with the American Medical Association and certifying bodies of other professional groups desirable procedures for national certification of physical therapists.

Following the adoption of the above resolution, a motion was presented by the Board of Directors and passed by the House as follows: The APTA will participate, if invited, in the *ad hoc* committee proposed by the Council on Medical Education and Hospitals of the American Medical Association for the purpose of exploring the organization, structure, function, and operation of an independent national agency or registry for certification and registration of physical therapists that will be acceptable to the House of Delegates of the American Physical Therapy Association.

WORLD CONFEDERATION FOR PHYSICAL THERAPY

The APTA representative serving on the Executive Committee of the WCPT, Lt. Col. Agnes P. Snyder, reported to the House on information regarding the organization, and the activities of the Confederation. M. Joyce Neilson, formerly with the Chartered Society of Physiotherapy, Great Britain, has been appointed Secretary-General of the organization. For the present the headquarters is located in the same building with the Chartered Society. Through a grant from the World Veterans Federation, the operations

at headquarters are assured until 1963, when it is hoped the per capita assessment will become effective.

The 4th Congress meeting in Copenhagen will be held June 17-22, 1963. The preliminary program announces the theme as "Physical Therapy for the Diseases and Conditions Associated with Modern Living".

Our delegate to WCPT believes that this organization is assuming its role in the world health groups that are doing so much to bring better health opportunities to more people throughout the world.

PHYSICAL THERAPY REVIEW

As a result of the resolution passed by the 1960 House of Delegates the Board of Directors recommended that the title of the *Physical Therapy Review* be changed to the *Journal of the American Physical Therapy Association.* The House approved the change of the title to be effective as soon as possible on a January 1st date.

INACTIVE MEMBERSHIP

The following resolution was passed and will be considered by the Board of Directors, for presentation at the 1962 House of Delegates for decision:

Whereas, The American Physical Therapy Association is a professional organization dedicated to serve the patient, the doctor, and its own membership; and

Whereas, The service rendered by the Association advances professional skill, provides for education and research, and promotes public relations with the medical profession, the lay public, and its own membership; and

Whereas, These services add to the prestige, convenience, and propagation of the Association and are rendered to all members; and

Whereas, The ratio of inactive membership has increased from 2 per cent in 1941 to 25.5 per cent in 1961, and a projection indicates that it will increase to 31.8 per cent in 1971; and

Whereas, In view of our Association's present financial status, it would appear that this matter requires immediate study; therefore, be it

Resolved, That the Board of Directors of the American Physical Therapy Association be charged with the responsibility of re-evaluating the membership classification in our organization; and be it

Further Resolved, That this study be completed and presented to the House of Delegates for decision at the National Conference in 1962.

PRESIDENT'S COMMITTEE ON PHYSICAL FITNESS

Another resolution adopted and referred to the Board of Directors reads as follows:

Whereas, There has been much criticism of the physical fitness of our nation; and

Whereas, A nation of physically unfit people can not compete successfully in the struggle against the conflicting ideologies which exist today; and

Whereas, The American Physical Therapy Association and the profession of physical therapy are in a particularly advantageous position to recognize the needs for promoting physical fitness; therefore, be it

Resolved, That the Board of Directors of the American Physical Therapy Association be requested to explore ways and means of offering the services of the physical therapy profession through representation from the American Physical Therapy Association on the President's Committee on Physical Fitness.

COMMENDATION OF EXECUTIVE DIRECTOR

By a unanimous vote the following resolution was passed by the House:

Whereas, The American Physical Therapy Association has been faced during the past few years with a serious financial revision, necessitating a material reduction in its operating budget; and

Whereas, It has become necessary during this time to carefully evaluate and identify the basic program requirements of our professional existence; and

Whereas, It has been apparent from the financial reports that we have consistently realized a budgetary excess of income over expenses, therefore, be it

Resolved, That the House of Delegates express its appreciation and confidence in our Executive Director, Lucy Blair, for her leadership in the efficient operation of the affairs of the Association.

ANNUAL CONFERENCES

A vote of thanks was given to the Illinois Chapter, and to the National Office staff in appreciation for their efficient planning for the successful thirty-eighth APTA Conference in Chicago.

The Northern California Chapter extended a cordial invitation to all members to attend the 1962 Annual Conference in San Francisco.

The Greater New York District of the New York Chapter reminded the House of Delegates that "In 1962, it's the Golden Gate but in 1963 it's the Empire State."

ELECTION RETURNS AND INSTALLATION OF OFFICERS

Charles Dorando, Chief Teller, reported on the results of the voting. The following candidates were elected: Mary E. Kolb, President; Jean C. Bailey, First Vice-President; James M. Bauer, Second Vice-President; Margaret L. Moore, Secretary; Anthony J. DeRosa, Treasurer. *Directors:* Marjorie K. Ionta; Thelma Pedersen; Wayne H. Perdue; Kathryn E. Phillips. *Member of the Nominating Committee:* Mildred L. Wood.

Following this announcement, President Agnes Snyder installed the newly elected Officers, Directors and Member of the Nominating Committee.

VOTE OF THANKS

The members and delegates arose and applauded in giving a vote of thanks to Colonel Snyder our retiring President for her leadership during the past three years.

PARLIAMENTARIAN COMMENTS

Mrs. W. Glenn Suthers, the Parliamentarian remarked that she had enjoyed meeting with us and complimented our Speaker of the House, Mary E. Kolb. She referred to the interest expressed regarding our Bylaws, even though she said she had never seen a perfect set, and suggested that we review our procedure on resolutions.

JEAN C. BAILEY, *Secretary*
ANNA J. JANETT
MARGARET L. MOORE

1961 Meeting of the Research Group

Over 200 people attended the meeting of the Research Group on July 3 during the 1961 Annual Conference at the Palmer House in Chicago. Presentations included:

"Scoliosis, a report of the results of forty-nine cases studied in relation to internal fixation of the spine," Miriam Partridge, Texas Institute for Rehabilitation and Research, Houston.

"The value of short term exercise programs for persons over 60," Helen Kaiser, Duke University, Durham, North Carolina.

"Abdominal compression reaction, the muscular activity observed and the influence of abdominal binding," by Dorothy Briggs, University of Wisconsin, Madison.

"A study in methods of testing sensation in the feet of cerebral palsy patients," Rheta Weidenbacker, University of Pennsylvania, Philadelphia.

The question has been raised, "What is the difference between the Research Group meeting at the annual Conference and the Original Papers sessions later in the week?" The Research Group welcomes informal discussion about the planning of your study and experience with procedures and not necessarily the finished paper with detailed findings. We would like to hear the "Introduction" and "Method" sections of your paper—such topics as how you worked out the problem, how it relates to other studies, what alternative methods may have been considered and rejected, your failures as well as your successs in instrumentation, problems in securing subjects, use of consultants, financing of the work through grants, or your role in the group if it is a team project. Such background material will be of practical help to others planning research. The detailed findings of the study may be submitted for presentation at the Original Papers session.

At the present time, the main function of the Research Group is to allow members to become better acquainted with one another's work. After the group meeting, those with similar interests can get together for further talk.

Interested members are invited to participate in the Research Group meeting at the 1962 Conference in San Francisco. Send a brief outline of your project to the program chairman.* In addition to the planned presentations (ten minute papers with five minutes for discussion) there will be time for general discussion and additional brief summaries of research projects by other members present.

MARIAN WILLIAMS, *Chairman*
RHETA WEIDENBACKER, *Program Chairman*
Division of Physical Therapy
University of Pennsylvania

* Division of Physical Therapy, University of Pennsylvania, 3901 Pine Street, Philadelphia.

Education

Functions of the Physical Therapist

It is axiomatic that the instruction and guidance of physical therapy students should be based on demands of the profession. Thus the question of *what constitutes the function of the physical therapist* has been of continuing concern to the Council of Physical Therapy School Directors. It is recognized that a valid answer can be supplied only through investigation involving testing of the opinion of a significant cross-section of physicians utilizing physical therapy and of practicing physical therapists themselves, as well as by observation of physical therapists in action, in different capacities and at various levels of service. Nevertheless, as an initial step, the Council here reports the results of its own deliberations, with the hope of sparking interest among physical therapists generally and thereby stimulating inquiry of a more scientific nature.

As a means of clarifying the thinking of its own members, the Council at its annual institute in 1959 undertook a consideration of the role of the physical therapist in this country. A detailed outline of the steps taken in examination of the subject is available on request but is omitted here in the interest of brevity. The list of functions ultimately formulated and approved represented the opinion of Council members complemented by the ideas and convictions of a hospital administrator (who discussed with the group his observations on changing concepts in medical care), an internist, a physiatrist, and four clinical physical therapists practicing in widely different areas of service. The temporary outline of responsibilities that evolved is presented below.

The role of the physical therapist, practicing under medical direction, encompasses:

I. Service to the patient

A. Evaluates physical status.
Through a variety of testing and measuring procedures, the majority relating to motor ability and circulatory function, participates in analysis and appraisal of the patient's condition, thus providing the physician with pertinent data to assist him in determining diagnosis, prognosis and prescription and laying sound bases for planning the physical therapy program.

B. Participates in ward rounds, clinics, conferences and consultations related to the physical therapist's "area of operations."

C. In co-operation with the physician, plans the physical therapy program compatible with the patient's social, economic, emotional and physical needs.

D. Within the bounds of sound professional ethics and judgment, interprets to the patient (and to those closely associated with him) the purpose and underlying rationale of the comprehensive treatment program.

E. Executes the physical therapy program, re-evaluating the patient's physical status at periodic intervals.

F. Reports by keeping appropriate clinical records and by conferring with physicians in regard to patient's status, care and progress.

G. Determines progression in treatment through continuous awareness of the objectives and effectiveness of the prescribed program being followed.

II. Education (or instruction)

A. of patient and, when advisable, of those persons involved in his case.

B. of professional and non-professional physical therapy staff.
Among numerous other educational opportunities, carefully planned, continuing in-service programs are included under this heading.

C. of professional students in physical therapy and allied fields.
The physical therapist provides clinical instruction and supervision of physical therapy students and orientation *to physical therapy* for students of medicine and of various associate medical professions.

D. of professional personnel in allied fields, as requested and as appropriate.

E. of the public.
Energetic assistance in interpreting physical therapy as a profession to the community, and in recruiting qualified young people as physical therapy students, are essential duties of all physical therapists.

F. of self (physical therapist).
The physical therapist assumes responsibility for his own continuing education. He keeps informed of recent advances in professional theory and practice through reading, participation as opportunity affords in educational institutes and meetings, attendance at organizational conferences and short courses, and advanced formal education.

III. Management
- A. Budget development.
- B. Establishment of personnel policies (in collaboration with administration of the employing institution or agency) and adherence to them.
- C. Maintenance of supplies and equipment.
- D. Creation of a safe, clean, agreeable working situation.
- E. Record keeping relating to departmental procedures and patient care.
- F. Supervision of staff and evaluation of staff performance.
- G. Scheduling.

IV. Establishment and maintenance of favorable interrelations
- A. Professional
  1. of patient with physical therapist.
  2. within physical therapy.
  3. of physical therapy with the employing institution or agency.
     The physical therapist adheres to the philosophy, policies and regulations of the institution or agency for which he works; and otherwise participates willingly in its life.
  4. of physical therapy with allied professions.
     The physical therapist actively seeks an adequate understanding and appreciation of the contributions of other health professions; and collaborates with them in developing, improving and correlating the many aspects of comprehensive patient care.
  5. of physical therapist with physicians.
     Before treating a patient, the physical therapist is responsible for obtaining a prescription from the physician. Communication and co-operation between physical therapist and physician are continuously maintained in order that the physician may be kept fully informed concerning his patient's program and progress.
- B. Public
  The physical therapist assumes with interest and vigor specific responsibilities relating to the civic life of the community in which he lives and/or works.

V. Growth
- A. Professional
  1. reading
  2. self evaluation
  3. research
  4. writing for publication
  5. participation
     a. in professional organizations.
        The physical therapist *actively* supports the American Physical Therapy Association on district, chapter and national levels, thereby demonstrating serious interest in the continuing advancement of physical therapy as a profession.
        It is largely through opportunities afforded by his Association that he gradually assumes leadership in professional affairs.
        Activity of the physical therapist in organizations having purposes in common with those of his own Association may also be advisable and of value.
     b. in the general work and life of the employing institution or agency.
  6. periodic reassessment of the physical therapist's role in medicine, in order that professional education (and therefore clinical services) may better meet the needs of patients.
- B. personal
  1. intellectual
  2. social
  3. cultural
  4. ethical

It is evident that not every physical therapist can perform all of the functions listed above. As his level of professional development rises (through experience, continuing education and increased research interest) the physical therapist gradually assumes broader responsibilities.

All are agreed that today the duties of the physical therapist include but far transcend the administration of exercise and physical agents as therapeutic measures. However, for adequate preparation of students, it is essential that professional responsibilities be defined in a form sufficiently flexible to permit revision as concepts of medical care change, and as physical therapy grows in influence among the health professions. To that task the interest of all physical therapists is invited.

Council of Physical Therapy School Directors
Publications Committee
ELIZABETH C. ADDOMS, (Project Author)
MARY E. CALLAHAN
BEATRICE F. SCHULZ, *Chairman*

Objectives of Basic Physical Therapy Education

This report is based on the proceedings of the Institute of the Council of Physical Therapy School Directors,* held in Chapel Hill, North Carolina, November 14-17, 1960. The theme was "Development of Objectives in Physical Therapy." The study was initiated for the purpose of presenting the scope of the Council's deliberations to date, and is obviously in need of further development. The plan is to keep you abreast of objectives as they crystallize and to present finally a complete report.

The profession of physical therapy has a definite scope and function. It has drawn on related fields of knowledge and skill. However, there is a core of knowledge and method primarily its own, to which other professions can contribute but for which they cannot substitute. It is the obligation of the members of the profession to maintain that identity. Physical Therapy educators are constantly working to define with greater accuracy the capacities and qualities needed to advance the profession and the society it serves. All are aware of the fact that the concept of today's requirements may not be that of tomorrow's.

Defining goals is one of the most complex of all activities in curriculum development. Diverse factors influence the selection and statement of objectives, and if we accept the broad definition of education, namely, changing of the behavior patterns of people, this selection of objectives becomes crucial.

The function of a physical therapist in society and the demands implicit in the practice of Physical Therapy determine the aims of the educational program. The responsibilities which practitioners must assume designate the knowledge and skill to be attained. They determine also the character of the educational experience which a student must have in order to be prepared to provide competent service and contribute to the growth of the profession in a changing social order.

It follows that the objectives of the educational program must focus on the student. He is the one who is "becoming" a physical therapist, the one who will be the leader in tomorrow's practice. In general, his education and experience must be designed to promote the growth of the individual from a pupil into a physical therapist competent to discharge his social responsibilities, to provide leadership, to grow in usefulness through continued study and research, and to creditably perform his professional tasks. He must have the capacity and desire to obtain clinical and social skills necessary to the best utilization of his knowledge. He must develop those basic intellectual attitudes and ethical principles which are essential to gain and maintain the confidence and trust of those whom he treats, the respect of those with whom he works, and the support of the community in which he lives.

In expressing the foregoing general statements in terms of the functions of the practicing physical therapist, it is found that his responsibilities fall into five major categories, namely, *service to the patient, education of self and others, management of a therapeutic clinic, establishment and maintenance of good interpersonal relationships*, and *continued growth and development* (personal and professional). These responsibilities are obviously mutually interdependent.

Taking these major roles as a basis for specification, the more detailed objectives of the curriculum have been developed. First, however, a definition of terms used in this report is presented. Reference is made to developing an *understanding*, meaning knowledge, the power of comprehending, interpreting, judging; *appreciation*, referring to sensitive awareness of value and worth; *ability*, competency or proficiency in work; and finally *skill*, ability to use knowledge effectively and readily in performance. The objective thus far developed follow:

I. Competency in the Practice of Physical Therapy
   A. A student in physical therapy should develop:
      1. An understanding of anatomy and physiology (with an accent on the neuromuscular, cardiovascular, skeletal and respiratory systems), and the modification of structure and functions resulting from disease and injury.
      2. An understanding of the principles and therapeutic application of heat or cold, light, electricity, water, air, sound, exercise, massage and supportive devices.
      3. An understanding of normal growth and development, and the modification produced by disease or injury amenable to physical therapy.
      4. An understanding of basic psychological principles including normal emotional reactions and related physio-

* This Institute was partially financed by the Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington, D. C.

logical responses in health, illness and disability.
5. An understanding of the concept of comprehensive care.
6. Skill in physical and psychological preparation of the patient for physical therapy.
7. The ability to use discriminating judgment in the implementation of physical therapy procedures within the prescription of the referring physician.
8. The ability to use efficiently time, energy and motion in the preparation and administration of treatment procedures.
9. The ability to assess physical status.
10. The ability to assess the effectiveness of a procedure in the treatment of the patient.

II. Growth and Development—Personality Characteristics
A. The student should develop:
1. The ability to establish realistic personal goals within his capacities, strengthening those characteristics which are favorable for interpersonal relations and altering those which are apt to be detrimental in professional and social situations.
2. An appreciation of and ability to control overt emotional reactions.
3. An understanding and acceptance of the moral and ethical values necessary to the practice of physical therapy.

III. Art of communication
A. The student should develop:
1. The ability to transmit an idea logically with clarity and precision orally or in writing.
2. The ability to adapt communication skills to the level of comprehension of each individual and group with whom he works, and to interpret purposes and method of treatment procedures to the patient.
3. An appreciation of how one communicates by physical manifestations (e.g. facial expressions, dress, posture, voice), and the need for appropriate use of this type of communication.
4. An understanding of how emotional stress can affect expression of ideas and to be mindful of this fact when interpreting the expressed ideas of others.

IV. Professional development
A. The student should develop:
1. An appreciation for the need of continuing professional and general education after graduation.
2. An appreciation for intellectual curiosity and creative thinking as necessary toward self-development and development of the profession.
3. An understanding of the need for flexibility in thinking and attitudes in order to accept change in professional concepts and practices as the practice of medicine changes and research develops.
4. The ability to recognize and identify potential areas for research and to participate in such studies.
5. The ability and readiness to accept and sustain professional responsibility.
6. The ability to analyze professional literature and share his evaluation with his colleagues.
7. An understanding of the principles of teaching.

V. Human relations
A. The student should develop:
1. An understanding of legal responsibilities of a physical therapist which entitle the patient to protection, privacy and respect.
2. An understanding of associated health fields.
3. An appreciation of the importance and degree of personality identification between patient and therapist.
4. An understanding of the reactions of person to person and a capacity to establish and sustain purposeful working relationships.
5. The ability to participate as an individual or as a member of a group which may entail a minor or subordinate role as well as a major one.

VI. Social conscience and consciousness
A. The student should develop:
1. An understanding of the professional code of ethics and its implications in practice.
2. An appreciation of the general problems and trends in the establishment and development of physical therapy as a profession.

3. An interest in current social, political, economic, and world health problems and should participate as a citizen.

VII. Management and administration

A. The student should develop:

1. An understanding that medical records and reports have value to the patient, hospital, physician, in legal defense, public health work and in medical research.
2. An appreciation for the problems of administration of a medical care facility.
3. An appreciation of administrative procedures.
4. An appreciation for the need and utilization of assistance in services such as housekeeping, clerical, transportation of patients and care of equipment.

VIII. Personal health

A. The student should develop:

1. An understanding of the need for physical fitness.

It is hoped this interim report will be of value to all persons concerned with the education of the physical therapist. Special acknowledgment is due Lawrence F. Fisher, Ph.D., Associate Director, Research in Medical Education, College of Medicine, University of Illinois, for his assistance and guidance in the art of the formulation and the evaluation of objectives.

Council of Physical Therapy School Directors
Publications Committee
MARY E. CALLAHAN *(Project author)*
ELIZABETH C. ADDOMS
BEATRICE F. SCHULZ, *Chairman*

SHORT TERM COURSES FOR GRADUATE PHYSICAL THERAPISTS

Title of Course	*Sponsor of Course*	*For Details Contact*	*Dates of Course*
Cerebral Palsy	The North Carolina Cerebral Palsy Hospital Durham, North Carolina	Lenox D. Baker, M.D. Medical Director No. Carolina C. P. Hosp. Durham, North Carolina	Courses arranged according to individual need—duration 3 months
Cerebral Palsy Technics of Treatment	Children's Rehabilitation Institute for Cerebral Palsy Reisterstown, Maryland	William P. Germain Executive Director Children's Rehab. Inst. Reisterstown, Maryland	Oct. 2—Dec. 15, 1961 Jan. 8, 1962—March 23, 1962 April 9, 1962—June 22, 1962 July 9, 1962—Sept. 21, 1962 Oct. 8, 1962—Dec. 21, 1962
Theory and Technic of Treatment and Care of Neuromuscular and Musculoskeletal Disorders	Georgia Warm Springs Foundation Warm Springs, Georgia	Robert L. Bennett, M.D. Director Ga. Warm Springs Found. Warm Springs, Georgia	March 26 to June 15, 1962 June 18, 1962 to Sept. 7, 1962 Sept. 24 to Dec. 14, 1962 Dec. 31, 1962 to March 22, 1963
Technics of Neuromuscular Facilitation	California Rehabilitation Center Vallejo, California	Margaret Knott, Chief P.T. Calif. Rehab. Center Vallejo, Calif.	January 2 April 1 July 1 October 1
Graduate Physical Therapy Program	Rancho Los Amigos Hospital Downey, California	Chief Physical Therapist Rancho Los Amigos Hospital 7601 E. Imperial Highway Downey, California	2nd Monday in March to 1st Monday in Sept. 2nd Monday in Sept. to 1st Monday in March

Advanced Physical Rehabilitation Methods for Physical/Occupational Therapists	New York University Medical Center—Institute of Physical Medicine and Rehabilitation (in cooperation with New York University School of Education)	Edith Buchwald Lawton, Director, Postgraduate Education for Paramedical Personnel, New York University Medical Center, Institute of Physical Medicine and Rehabilitation, 400 East 34 Street New York 16, N. Y.	Nov. 13—Dec. 8, 1961 Feb. 5—Mar. 2, 1962 April 30—May 25, 1962
Juvenile Amputee Prosthetics (#632)	Northwestern University Medical School	Jack D. Armold, Ph.D. Director of Prosthetic Education Northwestern University Medical School 401 E. Ohio Street Chicago, Illinois	Dec. 4-6, 1961
Lower-Extremity Prosthetics (#622)	Northwestern University Medical School	Jack D. Armold, Ph.D. Director of Prosthetic Education Northwestern University Medical School 401 E. Ohio Street Chicago, Illinois	Nov. 6-10, 1961 April 2-6, 1962 April 23-27, 1962
	Post-Graduate Medical School & College of Engineering New York University; & U. S. Office of Vocational Rehabilitation	Prosthetics and Orthotics New York University Post-Graduate Medical School 550 First Avenue New York 16, New York	742A Oct. 9-20, 1961 742B Dec. 4-15, 1961 742C Feb. 5-16, 1962 742D Apr. 23-May 4, 1962
Upper-Extremity Prosthetics (#662)	Northwestern University Medical School	Jack D. Armold, Ph.D. Director of Prosthetic Education Northwestern University Medical School 401 E. Ohio Street Chicago, Illinois	Feb. 19-23, 1962 Mar. 5-9 1962
	Post-Graduate Medical School & College of Engineering New York University; & U. S. Office of Vocational Rehabilitation	Prosthetics and Orthotics New York University Post-Graduate Medical School 550 First Avenue New York 16, New York	745A Jan. 15-26, 1962 745B May 14-25, 1962

Student Column

Wheel Chair Therapists

Will any member of the School of Physical Therapy, class of 1961, become a wheel chair therapist? What a morbid thought, you say, but it is entirely possible. Our classmates and faculty would think of it as a terrible tragedy, and all our sympathy would go out to this unfortunate member.

But let us think of it in another sense, our profession is moving forward. Will we all keep pace or will any one of us lag behind in our wheel chair of complacency, content to let our colleagues do the research and develop the new techniques of treatment.

Which would be the greater fate, to be literally or a figuratively wheel chair therapist? We have no control over the former condition, but the latter is up to each of us individually. It is my sincere desire that not one of the class of 1961 be found in either catagory.

ELEANOR LOHR
Student Member
Loma Linda University

No man, for any considerable period can wear one face to himself, and another to the multitude, without finally getting bewildered as to which may be the true.—HAWTHORNE, *J. Int. Coll. Surg.*, 35:619, May 1961.

Abstracts

Cervical Disk Rupture

Carol Kirsch (Orthopaedic Dept., University of Uppsola, Sweden), ACTA ORTHOP. SCAN., 20:172-185, 1960

The term "Brachialgia" is generally used as a collective name to describe the symptoms in painful conditions of the shoulder and arm. A characteristic feature of brachialgia is that the distribution of the pain over the arm varies. When pain is localized to the shoulder joint alone, it is regarded as indicative of joint involvement such as periarthritis, bursitis, tendinitis or rupture of the aponeurosis. When pain has radiated down to the hand and fingers, it is considered to indicate cervical nerve root lesions.

The demand for accurate diagnosis of cervical nerve root irritation is increased if surgical intervention or removal of intervertebral disk material is contemplated. Exact diagnostic methods are particularly important if the surgery entails an anterolateral excision and the surgeon has no possibility of seeing the lesion.

The author reports on eighteen patients suffering shoulder-arm pain with unimpaired shoulder joint mobility and radiation of pain down to one or more fingers. The symptoms were of several years standing and all the patients had received routine conservative treatment.

Electromyography was performed on ten patients. In five of them there were signs of denervation in one or several muscles as indicated by spontaneous filbrillation potentials in conjunction with positive sharp waves, fasciculation potentials or a reduced number of active motor units during voluntary contraction. Electromyographic examination was considered to be a valuable complement to the neurologic examination, but not a replacement for a careful clinical analysis.

All patients were examined by roentgenography and myelography. Although the small number of cases studied calls for caution in interpreting the findings, there seems to be an agreement between roentgenologic disc degeneration, a positive myelogram and neurologic disturbances. Although the clinically estimated level of involvement does not always agree with that established on myelographic examination, the myelogram disclosed multiple nerve root compressions in many cases. This may be regarded as an explanation of the difficulties encountered in establishing the exact level of involvement on clinical examination.

In seven cases, where evidence of a positive myelogram agreed with clinical findings, anterolateral disk fenestration was performed with good immediate results.

Skin Replacement in Hand Injuries

A. J. Evans (Queen Mary's Roehampton Hospital), PHYSIOTHERAPY, 47:65-67, March 1961

In the treatment of restricting scars on the hand, it is essential that one visualize the scar removed so that the structures fall back into their normal position in order to appreciate the actual area of skin that is missing.

Skin can be replaced in one or two ways. The first of these is free grafts which usually are applied as split-skin grafts. These have limited use on the hand, as they have no blood supply of their own and will not survive over exposed tendon or bone. In the second method, skin flaps are always attached at one point to the body, and carry their own blood supply. The thenar flap is commonly used for fingertip injuries; however, it is inadvisable in older groups as the damaged finger must remain flexed for two weeks and there may be difficulty in regaining full extension.

The author reports the treatment of burns that is used in the new Burns Unit of the Plastic Surgery Section. A new patient is admitted to the Shock Room where special treatment is given for the rapid and severe systemic effects. The burned areas are treated by exposure which has considerably reduced infection and facilitated the excision of deeper burns requiring skin grafting. The burned hand presents certain special problems and its treatment by exposure requires the services of a team especially trained and experienced in this technique. The limb is elevated to reduce edema and must be supported to limit contact with the surface of the burn. Within three or four days, controlled movements of the fingers are started. The physiotherapist is usually present and supervises exercises carried out in the bath.

The Relation of Time of Life to Behavioral Consequences in Brain Damage. II. The organization of Tactual Form Experience in Brain-Injured Adults

Herbert G. Birch and Lillian Belmont (Bird S. Coler Hospital, New York Medical College, New York), J. NERV. MENT. DIS., 131:489-494, December 1960

This report is the second in a series concerned with contrasting the consequences of brain damage sustained in childhood and later maturity. The first report concerned the difference in performance on a series of visual reconstructive tasks by brain-injured children and brain-injured geriatric patients. Underlying these investigations is the hypothesis that, together with locus of injury, extent of neurologic damage and type of lesion, the time in the life history of an individual at which damage is sustained is a significant variable in the determination of functional consequences. The forty subjects for the present study were selected from the rehabilitation wards of a large municipal hospital. Twenty patients had hemiplegia resulting from cerebral vascular accidents and twenty were non-brain damaged, but orthopedically handicapped.

The tactual discrimination task (Werner's tactual motor test) used was an exact reproduction of the study reported by Werner and Strauss in their studies of figure-ground disturbances in childhood brain damage.

The authors found that the adult control group performed more adequately than the adult brain-damaged group with respect to the accuracy of form response and the

degree of disruption induced by background interference.

The data of this study was compared with the data obtained by Werner and Strauss on children's responses to the same test. Both brain-damaged groups showed more deficit than did the respective controls, but the effect of brain injury in childhood apparently resulted in more deviant performance than did adult injury.

Postoperative Care in Lumbar Disc Syndrome

T. P. Anderson, E. Sachs, Jr., R. G. Fisher, and R. M. Krout (Dartmouth Medical School, Hanover, N. H.), ARCH. PHYS. MED., 42:152-158, March 1961

The paucity of literature concerning the postoperative care of patients who have undergone surgical removal of herniated intervertebral discs prompted the authors to review 179 cases. These patients had surgical removal of lumbar intervertebral discs at the Hitchcock Hospital between June 1951 and December 1955. All cases fulfilled two of the three criteria which had been established for surgery: typical history, positive neurologic changes, and positive myelogram. The length of follow-up varied from one year to more than five years.

The patients were referred to physical medicine on the fifth to tenth postoperative day, usually the day on which ambulation without pain was possible. Following detailed examination by the physiatrist, treatment was planned on an individual basis and included several of the following:

1. Exercises to strengthen weak muscles, to stretch contractures, and to improve posture.
2. Posture correction including weight reduction and temporary use of back brace or corset.
3. Limitation of activities including length of time out of bed with gradual progress commensurate with strength of back extensors.
4. Treatment of associated disorders such as trochanteric bursitis or flat foot.
5. Gait correction including use of indicated supports such as crutches, canes, or braces.
6. Correction of poor work habits.

The results of treatment were evaluated by the patient's response to questionnaire. Ninety-four per cent were either "better" or "cured." Only 6 per cent were "unimproved or worse." The level of the protruded disc did not appear as an important factor in the distribution of case into categories. Eleven cases required spinal fusion, five of which were performed at the time of disc surgery. All five had results classified as "better" or "cured."

The authors attributed the favorable results of their series to careful preoperative evaluation, close co-operation between neurosurgeon and physiatrist during the early postoperative period, and the individually prescribed treatment as described above.

Anterior Tibial Compartment Syndrome: A Plea for Early Surgical Treatment

Carl W. Hughes, Ernest C. Lineberg, and Warner F. Bowers (Tripler Army Hospital, Hawaii), MILIT. MED., 126:124-130, February 1961

Ischemic necrosis of isolated groups of muscles is most commonly reported in the anterior tibial compartment. Full recovery has been rare among reported cases. Moretz recognized three precipitating factors: strenuous muscle activity; trauma from external violence; and interference with the main arterial supply. Most authors agree that the rigid osteofascial arrangement of the anterior tibial compartment is a major factor in producing irreversible changes in the muscles.

The patient presents a history of unusual, sustained physical activity with pain and tenderness in muscles of the anterior compartment when ankle motion is attempted. Swelling, induration, and paralysis follow. Signs and symptoms continue to progress after cessation of activities, making bedrest, elevation, and observation important in diagnosis and management. Continued progression of swelling and neuropathy are indications for surgery.

Surgical intervention is directed toward relieving tension in the anterior compartment by fasciotomy. The wound is unsutured to allow inspection and muscle debridement as necessary. Skin grafting is usually required for closure.

The amount of ischemic change has ranged from minimal necrosis to complete liquefaction of the involved muscles. The authors believed that excess accumulation of metabolites by the muscles and retention of tissue fluids produced further impediment to venous return and resulting anoxia. This damage was compounded by the rigid, closed space in which the edematous muscles were located.

The authors presented three cases in which early fasciotomy was performed. Complete recovery was reported in two cases. They cited an additional reported case in which full recovery followed fasciotomy performed thirty hours after onset.

Clinical Evaluation of a New Approach in the Treatment of Contracture Associated with Hip Fractures after Internal Fixation

J. F. Lehmann, W. E. Fordyce, L. A. Rathbun, R. E. Larson, and D. H. Wood (University of Washington School of Medicine, Seattle, Washington), ARCH. PHYS. MED., 42:95-100, February 1961

Previous studies had established that ultrasound applied to affected fibrous tissues renders collagen fibers more extensible, selectively raises the temperature of the tissues, and has a pain relieving effect. It has also been established that ultrasound does not raise the temperature of the metal implant or the surrounding tissue excessively. The purpose of this study was to investigate clinically the effect of ultrasound as an adjunct to standard postoperative treatment for preventing and reversing hip flexion contractures in patients with hip fractures.

Thirty patients with unilateral femoral neck fractures or trochanteric fractures were selected after internal fixation of the fragments had been achieved by the use of Smith-Petersen, Neufeld, Jewett, Thornton, or Richard metallic implants. Physical therapy was initiated on the tenth postoperative day with alternate assignment to a group treated with ultrasound or to a group treated with infrared. Ultrasound was applied with stroking technic to anterior, posterior, and superior aspects of the hip joint, five minutes to each area, with intensity of 1.0 to 2.5 watts per cm^2. Infrared was applied with a 1,000 watt lamp for thirty minutes. The standardized program included massage, active assistive exercises to increase the range of motion of the hip and knee joints, and three point crutch gait with no weight-bearing on the involved lower extremity. The patients were treated daily.

The group compositions were sub-

jected to analysis and the two groups of patients appeared to be comparable for statistical purposes. The range of motion of the hip and knee joints was measured prior to initial treatment and at weekly intervals.

Statistical evaluation of the data indicated that ultrasound produced a significantly greater amount of change than did infrared for all motions except knee flexion after one week of treatment. Evaluation also indicated that ultrasound produced a consistent significant effect on all joint ranges while infrared produced only slight effects. A significant correlation was found to exist between range of motion before treatment and amount of change; the greater the range which existed before treatment, the less the change with treatment.

No untoward effects were observed in either group of patients. Clinical observations suggested that those treated with ultrasound became self-sufficient faster and to a greater degree than those treated with infrared. This impression was not measured objectively.

Experimental Circulatory Arrest and Electrical Activity of the Brain

A. A. Lepore and F. Morin (Wayne State University College of Medicine, Detroit), J. THOR. CARDIOV. SURG., 41:212-22?, February 1961

Twenty-two experiments on eighteen cats and one monkey were performed in an effort to study the length of time that the central nervous system of a hypothermic animal can tolerate circulatory arrest. General anesthesia was utilized, the body temperature was lowered to a point between 20 and 25° C. When fibrillation occurred, defibrillation was achieved electrically.

At normal temperatures, with both venae cavae occluded, the electroencephalogram showed cortical activity to be reduced in amplitude but the general pattern was maintained up to ten minutes. In hypothermic cats the venae cavae were occluded for as long as thirty minutes and encephalographic activity returned to normal. However, when the azygos vein was also occluded, hypothermic animals did not tolerate equal amounts of occlusion. In only six of the eighteen animals with complete circulatory arrest for twenty minutes did electroencephalographic activity return to normal.

When circulatory arrest was performed on animals with normal temperatures, return of electrical activity was immediate after the clamps were removed from the vessels. When similar procedures were performed on hypothermic animals, the return of electrical activity was greatly delayed. In some cases the delay amounted to two to three hours.

The authors concluded from their study that the azygos flow protects the brain from the immediate effects of vena caval occlusion.

Pectoralis Major Muscle

Leonard Marmor, Charles O. Bechtol, and Cameron B. Hall (University of California Medical Center, Los Angeles, California), J. BONE JOINT SURG., 43:81-87, January 1961

The strength of bilateral shoulder motions was studied in a patient who displayed unilateral congenital absence of the sternal portion of the pectoralis major muscle. Quantitative determinations were made of the force developed by isometric muscle contraction during abduction, internal rotation, and adduction, with the shoulder in various positions. An accurately calibrated cable tension tester was the measuring device.

The greatest loss of strength in the involved shoulder was observed in horizontal adduction from the position of ninety degrees of abduction to ninety degrees of flexion. In some positions along this arc the reduction amounted to almost 50 per cent of the strength of the uninvolved extremity. Significant diminution of strength was also recorded in internal rotation when the humerus was positioned at the side of the chest, and in returning the humerus to anatomical position from 135° of flexion. The authors concluded that the pectoralis major muscle is essential to the performance of athletics or other strenuous activity involving the upper extremities.

Two cases were cited in which athletes, in good physical condition, sustained ruptures of the pectoralis major muscle tendon. One gave a history of attempting to lift a 250-pound bar bell directly upward while he lay supine. This injury illustrated the relationship reported by Ralston and his associates: a muscle can hold about four times as much weight as it can lift.

The second patient gave a history of wrestling when he was fatigued, and of applying his body weight as an added force to his fully contracted muscles in an effort to accomplish a hold. The authors advocated surgical repair in these individuals and in others who utilize their upper extremities for vigorous physical activities.

Treatment of Disinsertion of the Biceps Brachii

A. A. Savastano (Providence, Rhode Island), J. INT. COLL. SURG., 35:342-347, March 1961

Ruptures of the long head and short head of the biceps brachii are lesions more commonly encountered than the disinsertion of the inserting tendon of the biceps brachii. A survey of the literature by the author indicates that this type of lesion occurs in approximately 3 per cent of all ruptures of the biceps brachii reported.

A review of the anatomic and functional characteristics of the biceps brachii is presented. It is generally agreed that the pathology involved in a rupture of the inserting tendon of his muscle is a result of violent muscular contraction superimposed upon pre-existing degenerative changes in the tendon structure. This type of lesion generally occurs in men over forty years of age and the patient has a history of lifting with the affected elbow in 80 to 90° of flexion. Although it occurs most often in those accustomed to moderate or heavy lifting, it is not uncommon in persons who do only occasional lifting. Signs and symptoms include acute pain in the affected elbow which subsides and is then described as a dull pain which persists especially during lifting. Swelling, discoloration and a noticeable bulge appear in the anteromedian area of the upper part of the arm. Ability to flex the elbow is weakened but does not disappear completely and supination of the forearm is reduced.

Since the biceps brachii is one of the most important flexors of the elbow, surgical repair of the ruptured tendon is the treatment of choice. The operative procedure utilized by the author is described and other surgical approaches are discussed. Following the re-attachment of the ruptured tendon, the arm is immobilized in plaster with the wrist in a cocked-up position, the

forearm in complete supination and the elbow at a right angle. Following three weeks of this type of immobilization, the plaster is removed and whirlpool and exercise are employed.

Thirteen cases are reported in this communication demonstrating a good functional postoperative result. The one case who refused a surgical repair is the only unsatisfactory result in the series. The unoperated patient has residual limitation of elbow flexion and supination with weakness of these motions in the affected arm. This evidence strengthens the concept of the necessity of surgical repair in lesions of this nature.

The Two Heads of Flexor Pollicis Brevis

M. H. Day, J. R. Napier (Royal Free Hospital School of Medicine, London, England), J. ANAT., 95:123-130, January 1961

The flexor pollicis brevis muscle has been a controversial subject for over a century. A discrepancy exists between modern British and French texts in regard to the definition of the muscle. The British texts describe the muscle as having a single head and believe the so-called deep head is part of the adductor pollicis. The French texts describe the flexor pollicis brevis as having a superficial and deep head.

The evidence presented is based upon sixty-five dissections. In the authors experience, the flexor pollicis brevis consists of a superficial head arising from the crest of the trapezium and adjacent flexor retinaculum, and a deep head arising from the trapezoid and capitate bones and the palmar ligaments of the distal row of carpal bones. Both heads unite on the radial sesamoid bone. A variable nerve supply was found in the series of thirty dissections. The most common pattern observed being a superficial head supplied by the median nerve and a deep head supplied by the ulnar nerve.

The action of the deep head of the short flexor of the thumb is identical to all intents and purposes with that of the superficial head. Both heads act as flexors of the carpometacarpal joint and the metacarpophalangeal joint of the adducted thumb. When the thumb is abducted by the abductor pollicis brevis the two heads of the flexor pollicis brevis provide the motive power for the movement of circumduction by which the abducted thumb is pulled into flexion and medial rotation.

Osteoarthritis of the Hip

Otto E. Aufranc (Visiting Orthopedic Surgeon, Massachusetts General Hospital, Boston, Massachusetts), ARTHRITIS. RHEUM., 4:94-102, February 1961

Early acute episodes of osteoarthritis of the hip are often effectively treated by conservative methods. Pain and spasm are relieved by bed rest, often reinforced by traction of 5 to 8 pounds, applied in the "line of deformity"; and by use of local heat and mild medications where necessary. Active exercise along with rest, should be used to eliminate any deformity or contracture. Exercises include gluteal, abductor, adductor, quadriceps and hamstring "setting"; and "stretching" motions for internal-external rotation, flexion-extension, and abduction-adduction. These motions should be active, gentle, and within the limit of "awareness" of pain. Gradual return to weight bearing with support is encouraged following relief of acute pain and spasm. The temporary use of a slight lift on the heel of the shoe on the involved side makes walking easier. After the flexion deformity is relieved the lift should be removed. Support is best provided by two crutches. Weight bearing during stance on the involved leg is thus reduced sufficiently to avoid pain, and the length of stride limited so that stretching in extension is not uncomfortable.

Exercises at this stage may employ gentle manipulative assistance toward correction of deformity. Once this is accomplished, active assisted exercises are substituted; and minimal amounts of resistance may be helpful later. Special care is needed to avoid re-creation of the synovitis by a program of weight resistance which is too ambitious.

In more advanced stages of the disease increasing pain, contractions, loss of motion, and joint damage may make surgical treatment necessary. Aims of surgery include: relief of pain, improvement of function, correction of deformity, provision of stability in a subluxed or dislocated hip, and prevention of strain changes or reactive arthritis in the knees, back or opposite hip. Measures for pain relief may include: rest, traction, medication, use of supporting cane or crutches, local injections, denervation operations such as neurectomy (which should be reserved for malignant disease only), and joint decompression such as aspirations, synovectomy, arthroplasty, osteotomy, and arthrodesis.

Arthrodesis provides complete relief of pain, but the stiff hip may make functional activities awkward and put further strain on adjacent joints. It may be revised in later years by arthroplasty to restore hip motion. Arthroplasty retains or increases motion, but the patient must be willing to tolerate minor aches and pains from over-use. Abductor strength is an important factor in selection of the type of reconstruction to be employed, prosthetic replacement requiring more abductor function than the vitallium cup for effective function. Development of "toggle motion" is a problem in all prosthetic hips. A small amount is not painful, but if the patient is allowed to use the hip with too much force and through too wide a range during the early postoperative period, this motion may increase to a painful degree. Of particular advantage to the older patient for whom prolonged or fatiguing functional activity need not be expected is the fact that patients with prosthetic head replacement seem to get earlier mobilization with less pain than those with mold reconstruction. Care must be taken, however, to avoid weight bearing too early, with resultant increased absorbtion of bone around the prosthesis. While these are helpful predictive considerations, final selection of the procedure to be used must be made at the time of surgery in the light of operative findings.

Electromyography of the Pronator Muscles in the Forearm

J. V. Basmajian, A. Travil (Department of Anatomy, Queens University, Kingston, Ontario, Canada), ANAT. REC., 139:45-49, January 1961

Although the gross anatomy of the pronator teres and pronator quadratus is adequately described in the textbooks, accurate authoritative information on the relative functional roles of the two muscles is not available. Therefore, an electromyographic study was carried out on the pronator muscles of eight young

adult male subjects. The results lead the authors to believe that existing concepts regarding the function of the pronator muscles is misleading.

Concentric needle electrodes were introduced into the pronator teres and pronator quadratus and three series of records were made in each subject. In series one, the elbow was kept fully extended. In series two, the elbow was flexed to a right angle with the forearm vertical and arm and elbow supported. In the third series, the elbow was flexed to an acute angle while it was still fully supported. The following movements were studied during each elbow position: slow pronation, fast pronation, hold in fully pronated position, slow supination through the whole range to full or forced supination, and fast supination. Records during slow flexion of the elbow were made on seven subjects while sitting upright with the limb hanging freely.

Analysis of the electromyographic records revealed that the quadratus is always the prime pronator regardless of elbow position. The teres is the auxiliary which reinforces fast pronation or pronation against resistance and the amount of activity is not affected by the position of the elbow. There was no activity in either muscle during supination.

Transmission of Polioviruses: Spread of Naturally Occurring Poliovirus Type I in a Partially Immunized School Population

Wehrle, Paul F., Ralph Reichert and Ory Carbonaro (Department of Pediatrics and Microbiology, State University of New York, Upstate Medical Center), PEDIATRICS, 27:748-754, May 1961

A study of a partially immunized recreational school population located in central New York was studied during an outbreak of poliovirus Type I infection. The data obtained indicate that some increased resistance to poliovirus Type I infection occurred following immunization but that the effect was limited to extra-household contact and was not apparent within households where infection occurred regardless of the immunization status of either the presumptive source or contact.

Relatively poor antigenicity of the vaccine seemed the best explanation. The study emphasized the need for universal immunization if clinical poliomyelitis is to be effectively controlled with Salk vaccine.

Rehabilitation Following Surgery For Chronic Arthritis

Jean B. D. Rogers (Teacher of Physiotherapy, The Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, Solop., England), PHYSIOTHERAPY, 47:39-40, February 1961

While any individual patient may require modification of treatment to meet his specific aims, it is possible to describe a useful, basic, program for chronic arthritic patients undergoing arthrodesis, osteotomy, or arthroplasty. Such a program is described for a patient with a disorder of the hip joint and surgery.

Preoperative treatment includes: assessment of the patient's disability from the physiotherapist's point of view; measures for relief of pain; instruction in breathing exercises; static (isometric) muscle contractions, with particular attention to abductors, extensors, medial rotators of the hip, and quadriceps; and improvement of circulation in the lower limb as necessary. Postoperative treatment in the early stage includes: breathing exercises, and assisted coughing if required; free active exercise of all non-immobilized joints; static contraction of muscles confined by splinting (if necessary apply short-lever pressure to facilitate contraction). This type of treatment is continued for three to seven days to allow surgical reaction to subside and healing to become well established. Certain surgeons may require some mobility earlier when this is appropriate to the main aim of the operation. More activity is gradually introduced until the maximum permitted by the splinting is reached.

Once mobilization of the affected part is allowed, treatment will include: mobilization exercises prior to weight bearing (free active motion following the rule "little and often"); and functional training to achieve independence while in bed, including changes of position. Sling supension exercises or hydrotherapy may be useful for active range of motion or strengthening exercises; and proper positioning of the leg may be insured by use of a splint worn at night to limit external rotation, and by encouraging prolonged periods of lying with the hip in full extension. Faradic stimulation may be used where atrophy or inhibition of muscles exists.

When ambulation begins, the patient must come to the physical therapy department for treatment, with emphasis on functional training to include gait training, stair climbing, getting in and out of chairs, dressing and undressing, with provision of such aids as needed. Exercises which do not demand weight bearing may be continued as needed.

Common complications may include stiffness of other joints, particularly the knee and spine; thrombosis or edema of the leg; respiratory complications; soft tissue contractures; and loss of exercise tolerance. Treatment often continues on an outpatient or home visit basis.

Use of Nerve Grafts For The Repair Of Defects In The Facial Nerve

Oliver H. Beahrs, Edward S. Judd and George F. Woodington (Section of Surgery, The Mayo Foundation, Rochester, Minnesota), ANN. SURG., 153:433-440, March 1961

In the past decade much has been written about repair of the facial nerve following damage in the course of surgery of the parotid gland. Suggested procedures have included: anastamosis of nerves or nerve grafts, transplantation of slips of muscles such as the masseter, temporalis or sternocleidomastoid; and use of supporting fascial strips.

Nerve anastomoses have made use of slips of the hypoglossal, and spinal accessory nerves, and are generally performed when the facial nerve has been destroyed intracranially. The resultant return of function is often marred by development of mass movement with poorly defined facial expression.

Free nerve grafting can be used to bridge one or more filaments or the entire nerve. At the Mayo clinic, grafting is done at the time of the parotid surgery, using a 3 to 6 cm. graft which may be divided to connect the several branches of the facial nerve. A slender graft is used so that it can absorb sufficient blood supply from the adjacent tissues and need not be moved with intact vessals. The source of the graft was usually the auricular nerve on the side of the lesion.

Such surgery is reported on seventeen patients in whom a defect of the facial nerve followed parotid or mastoid surgery. Twelve of the seventeen (70.6 per cent) showed objective return of function to a satisfactory degree (sufficient to mask the obvious cosmetic defect in expression), although return of fine movements of the facial muscles to a degree eliminating nearly all cosmetic defect was seen in only four of these.

First return of function was seen in from one to sixteen months depending on the size of the graft, with an average interval of six to eight months.

After surgery the patient is encouraged to massage the facial muscles to maintain good tone. Electrical stimulation has not been used. As a rule mass movement can be minimized by constant training.

A Study of Abnormal Reflex Patterns in Spasticity

Thomas C. Hohmann and Joseph Goodgold (Department of Physical Medicine and Rehabilitation, New York University, New York, New York), AMER. J. PHYS. MED., 40:52-55, April 1961

Hoffman's "H" reflex is presented as an additional clinical diagnostic method for determining the presence of upper motor neuron pathology and as a possible means of evaluating chemical agents used to control spasticity.

The H reflex is a monosynaptic response elicited by electrical stimulation of appropriate mixed peripheral nerves in the extremities. The H wave appears on the electromyograph after the M wave. The M wave is the action potential produced by the muscle because of direct efferent conduction along the motor nerve. The H wave, the second response, is reflexly produced by afferent conductions along the mixed nerve to the cord and back through the motor neuron to the muscle. Mineral stimuli elicit only the H wave. Both waves appear with stronger stimulation. Supramaximal stimuli obliterate the H wave. Magdalery and his co-workers found that the H reflex could not be elicited in certain cases of upper motor neuron damage.

The authors studied seventy-one patients with upper motor neuron involvement and a group of thirty-five normal subjects. The common peroneal nerve was stimulated and the potentials recorded from the anterior tibial muscle. Seventy-five per cent of the patients showed the H reflex and 5 per cent of the control group. The authors postulate that the reflex is suppressed in the normal individual but that it is released from inhibitory influences when there is upper motor neuron involvement. They propose examination for the reflex as an additional electrodiagnostic tool in equivocal cases of upper motor neuron involvement.

The authors have not yet any conclusive data on the effect upon the reflex of drugs used to relieve spasticity.

Transmission of Polioviruses: Prevalence of Polioviruses in Pharyngeal Secretions of Infected Household Contacts of Patients with Clinical Diseases

Wehrle, Paul F., Ory Carbonaro, Paul Day, Joseph P. Whalen, Ralph Reichert and Bernard Portnoy, (Department of Pediatrics and Microbiology, State University of New York, Upstate Medical Center), PEDIATRICS, 27:762-764, May 1961

It seems that the previously immunized family contact is less likely to harbor polioviruses in the pharynx than one not previously immunized.

The prevalence of pharyngeal poliovirus among household contacts appear to be quite different from the similar pattern of intestinal infection seen, regardless of immunization status. The difference appears to reflect a greater influence of neutralizing antibody on pharyngeal virus.

Transmission of Polioviruses: Spread of Attenuated Poliovirus Type III in a partially Immunized School Population

Wehrle, Paul F., Felicitas Hagen, and Ory Carbonaro (Department of Pediatrics and Microbiology, State University of New York, Upstate Medical Center), PEDIATRICS, 27:755-761, May 1961

An attenuated poliovirus Type III was fed to six members of a recreational school located in Central New York. Transmission of this virus occurred to only three of twenty-five family contacts of these six children and to only one of thirteen close school associates.

The results were interpreted to suggest that the attenuated poliovirus Type III strain (Leon $12a_1$ b) is less invasive in open populations than the natural polioviruses previously observed. It is likely that the increased prevalence of Coxsackie B_2 and B_3 infections, and perhaps other enteroviruses, may have had some effect on the spread of the attenuated polioviruses. However, it seems unlikely that these latter two factors could have explained the striking differences observed.

The Neuropathies Associated with Diabetes Mellitus—A Clinical and Electromyographic Study of 103 Unselected Diabetic Patients

D. W. Mulder (Section on Neurology, Mayo Clinic and Foundation, Rochester Minnesota), J. A. Bastron and R. G. Sprague, NEUROLOGY, 11:275-284, April 1961

Neurologic and electromyographic examinations were made on 103 unselected patients diagnosed diabetes mellitus. None of the patients had clinical manifestations of peripheral neuropathy.

Electromyographic findings were regarded as abnormal when fibrillation potentials or a marked reduction of the number of motor unit potentials, or both, were observed. The criteria used to determine abnormal nerve conduction was a latency period greater than 4.7 milliseconds in the median nerve and more than 7 milliseconds in the case of the peroneal nerve.

The results show that twenty-nine patients had evidence of arteriosclerosis with incompetence of blood flow in coronary or peripheral vessels, twenty-seven patients had diabetic retinopathy and two patients had Kimmelstiel-Wilson syndrome. Using the neurologic and electromyographic criteria, forty-seven patients did not have a neuropathy and thirty-one patients presented sufficient evidence to warrant a positive diagnosis of diffuse peripheral neuropathy. In nine patients, the findings were equivocal but suggestive of polyneuropathy. The clinical and electrical findings are compared and tabulated for all the subjects in the investigation.

The authors conclude that these studies suggest that there may be alteration in the peripheral nerves of diabetic patients without overt neuropathy. Polyneuropathies were most commonly found in patients with long standing diabetes. Mononeuropathies are generally self-limited and are amenable to specific therapy.

The authors suggest that the electromyogram is perhaps most effective as an extension of the neurologic exam and has the advantage of being more sensitive to alteration of function in the motor unit. It can provide the clinician with data

which are more reproducible than the observations made at clinical examination.

Electronic Dynamometer for Determination of Human Isometric Strength

Helen J. Hislop, G. R. Walters, H. M. Hines (Department of Physiology, State University of Iowa, Iowa City, Iowa), J. APPL. PHYSIOL., 16:388-389, March 1961

The authors describe in detail an apparatus designed to measure isometric tensions developed during voluntary flexion and extension of the larger joints of the body. A diagram of the component parts of the strain-gauge dynamometer is included and can be used without modification for determinations at the shoulder, elbow, hip, knee and neck. This apparatus can also be used to calculate the strength-endurance index according to the method described by Tuttle, Janney and Thompson.

Behavioral Changes in Patients with Strokes

Montague Ullman and Arno Gruen (Medical and Neurological Services, Bellevue Hospital, New York, New York), AMER. J. PSYCHIAT., 117: 1004-1009, May 1961

Eighty-four selected patients with a "stroke" were classified according to whether the psychological deficit on clinical estimate appeared to be mild (no gross impairment), moderate (uneven performance), or severe (global defects in orientation and responsiveness). Age, neurologic findings and disposition are reported briefly.

Patient interviews disclosed that the patients with mild deficits did not lose consciousness at the time of stroke and were not directly aware of cerebral disturbance but became aware of it through the experience of sensory motor dysfunction. Reaction to the stroke was primarily dependent on individual personality factors. In the group with moderate deficits the appropriateness of response varied with the subject under discussion. When areas of illness and effect were impinged upon, there was a sharp drop to a concrete, stereotyped level of response. The severe deficit group showed gross defects in orientation, memory, confabulation, and attention span.

Thus with progressive functional cerebral impairment the role of personality factors recedes as a determinant of behavior, and the residual capacity shapes the response in greater measure.

Loss of ability to think abstractly often gives rise to an apparent denial either of the existence of the limb or its dysfunction. Because of sensory and motor deficits, the limb drops out of the patient's awareness, and his recognition of the part is on the basis of remembrance of it prior to the illness. When unable to reconcile the two impressions by abstract thought, the patient may use denial as a means of explaining sensorimotor experiences.

The Effect of Artificially Ionized Air on Postoperative Discomfort

J. R. Minehart, T. A. David, F. J. McGurk and I. H. Kornblueh (Department of Surgery, Northeastern Hospital of Philadelphia, Philadelphia, Pennsylvania), AMER. J. PHYS. MED., 40:56-61, April 1961

The authors of this paper report on the effects of polarized air on 187 unselected surgical patients. Of these patients 138 underwent treatment with negatively ionized air and forty-nine served as controls. The controls were treated similarly in every respect to the treatment group except that the ion-producing parts of the ion generator were disconnected during their treatments.

Patients were treated in bed behind tightly drawn curtains. At the onset of postoperative pain they were exposed for thirty minutes to negatively ionized air rather than being given analgesics. Ionization was repeated two or three times a day. The degree of recovery from postoperative pain was based on the patients' statements and on the charted observations of the surgeons and the technicians who administered the ion therapy. Patients were informed that the purpose of the ionization was to improve their breathing. Neither patients nor technicians could know whether or not ions were being generated.

Statistical analyses revealed that the percentage of those improving under ionization treatment was significantly different from the percentage of those improving under the control treatment. The authors state that while the figures they have presented must be regarded as tentative only, the probabilities that such data could have occurred by chance are remote. They conclude that it appears that a significant number of patients can be made comfortable, even during the critical period after surgery, without the use of sedatives or narcotics.

Chronic Bronchitis and Pulmonary Emphysema

Richard Ebert (Department of Medicine, University of Arkansas Medical Center, Little Rock, Arkansas), POSTGRAD. MED., 29:341-345, April, 1961

The lung consists of two parts: a system of tubes, trachea, bronchi, and bronchioles; and the terminal air spaces to which the tubes conduct air. The conducting pathways contain relatively little air, but provide resistance to the movement of air. In bronchitis obstruction of the bronchi by excessive mucus and inflammation increases the resistance. The terminal air spaces contain most of the air in the lungs and provide a diffusion surface area estimated at 25 square meters. The elastic properties of the lung are closely related to this area. In emphysema enlargement of these spaces reduces elasticity, and causes the lungs to empty inadequately. Residual volume increases, while vital capacity decreases. Combined bronchitis and emphysema produce a marked reduction in volume and rate of expiratory air flow, with reduction of the surface area available for diffusion.

The exact cause of bronchitis and emphysema is unknown, but environmental facts (such as air pollution and smoking), sexual factors (these diseases are more prevalent in men), and increasing age are felt to be contributing factors.

History is of more value than roentgenograms and physical findings in diagnosis. Exertional dyspnea, chronic cough, and lack of any periods during which the patient is symptom free are typically reported. The most useful function test is vital capacity with an estimate of rate of expiratory air flow. The McKesson-Scott spirometer is one excellent instrument for this purpose.

Treatment is often discouraging to patient and physician. It may include avoidance of dust and smoking, use of antibiotics, and bronchodilatory drugs. Use of steroids is more controversial. Breathing ex-

ercises may help certain patients. Their effects may be largely psychological. When acute pulmonary insufficiency is present avoidance of sedatives, use of oxygen, mechanical respirators, and tracheostomy may become necessary. The patience and understanding of the physician are vital throughout.

Conditioned Responses in the Gamma Efferent System

J. S. Buchwald and E. Eldred (Dept. of Anatomy, School of Medicine, U.C.L.A., Los Angeles, California), J. NERV. MENT. DIS., 132:146-152, February 1961

The relationship between the gamma and alpha motoneurones is reviewed. It is known that, in some reflexes and during stimulation of the brain, alterations in gamma efferent activity is induced by stimuli inadequate to affect alpha motoneurones. Since this tonic and more sensitive activity in the gamma system provides a substrate out of which overt movements of the animal arise, one might anticipate that the gamma system is actively involved during the learning of motor responses. The possibility that the appearance of overt conditioned movements may be presaged by a pattern of conditioning involving gamma efferent pathways is investigated here.

In acute experiments on cats, immobilized by Flaxedil, recordings of gamma efferent activity in ventral roots of the sixth or seventh lumbar vertebra were made during conditioning trials in which a conditioning stimulus (sound) was paired with an electrical stimulus to the hind paw. The sound, or "tone" stimuli alone frequently caused acceleration or the slowing of gamma efferent discharge. This response could be habituated with repeated presentations of the tone. Gamma fibers unresponsive or habituated to the tone alone developed a conditioned response of accelerated discharge after five to ten presentations of the tone combined with the electrical stimulus. Conditioned responses of the alpha fibers were never observed in these trials. The conditioned response of the gamma efferents did not occur when a tone of different frequency was sounded, nor when the tone and the shock were presented alternately in unpaired sequence.

Conditioning of the gamma efferent system might result from cortical conditioning; but may be more related to changes in subcortical structures such as the reticular formation which would impose these conditioned changes on the gamma fibers at spinal levels. The sensitivity of the gamma system to conditioning suggests that this system may actively aid in the learning of motor responses.

Electromyographic Study of the Brachioradialis Muscle

O. M. De Sousa (Department of Anatomy and Department of Physiology, Faculdade de Medicinia da Universidade de Sae Paulo, Brazil), J. L. De Moraes and F. L. De Moraes Vieira, ANAT. REC., 139:125-131, February 1961

This communication reports an electromyographic study of the brachioradialis muscle in ten healthy subjects using two monopolar needle electrodes. The following motions were studied: flexion of the elbow with the forearm in midposition, pronated and supinated; pronation and supination of the forearm with the elbow extended; and pronation and supination of the forearm with the elbow flexed to 90°. All the motions were performed free and loaded.

Some of the results observed are: (1) free pronation of the extended forearm was performed without detectable action potentials of the brachioradialis in all subjects; (2) free supination of the extended forearm is also executed without any signs of electrical activity; and (3) even under conditions of a 360 Gm. load, free pronation and supination of the extended forearm failed to elicit action potentials of the brachioradialis; (4) all subjects demonstrated electrical activity in the brachioradialis during elbow flexion, however, it was noted that the brachioradialis does not act at the beginning of the movement but only after the movement has started; (5) during free and loaded supination and pronation with the forearm held at 90° flexion, no detectable muscular activity was observed in the brachioradialis.

The authors summarize the results of this investigation and believe the brachioradialis muscle appears to be only a flexor of the forearm. Reproductions of the electromyographic oscilloscope tracings and a diagram of the apparatus used accompanies the article.

The Floppy Infant

Robert Hardman (4200 East Ninth Avenue, Denver, Colorado), A. M. A. J. DIS. CHILD., 101:145-155, April 1961

The purpose of this paper is to summarize the present knowledge of the causes of hypotonia in early infancy and the means of differentiating the various disturbances that may produce this symptom.

Hypotonia can be produced by generalized systemic disease such as rickets, chronic infection, malnutrition, hypothyroidism, glycogen storage disease, congenital heart disease and others. These diseases have characteristic and well known findings which differentiate them from the neurological and muscular causes. The neurogenic causes include Werdnig-Hoffman's disease, simple mental deficiency, poliomyelitis, myasthenia gravis of the newborn, infantile polyneuritis, and hereditary ataxia. The myogenic causes include benign congenital hypotonia, infantile muscular dystrophy, polymyositis and "central core disease". The etiology, clinical picture, diagnostic criteria and prognosis of several of the neurogenic and myogenic diseases are discussed in detail.

"Amyotonia congenita" is not a single disease state. It includes a great number of disease entities, all characterized by hypotonia, absent deep tendon reflexes and muscular weakness. Although effective treatment is not available for many of these conditions, the possibility of instituting specific treatment in certain of them and the wide variation in prognosis makes precise diagnosis most desirable.

The author suggests that since the term "amyotonia congenita" generally describes only a symptom, a more descriptive and less confusing term for the combination of findings generally observed would be the "floppy infant syndrome."

Multidisciplinary Studies of Illness in Aged Persons

V. A. New Classification of Socioeconomic Functioning of Aged. The Staff of the Benjamin Rose Hospital, Cleveland, Ohio, J. CHRON. DIS., 13.453-464, May 1961

The staff of the Benjamin Rose Hospital, a hospital for prolonged illness, has been studying the mental, physical, and social changes in selected aging persons in order to

evolve a method for the study of the progression and regression of chronic disease. The study initially included only patients with fracture of the hip, but was extended to include patients with recent, initial episodes of cerebral infarction. Previous reports defined and demonstrated the use of an over-all index of independence in activities of daily living. The present report, an index of independence of socioeconomic functioning (I. S. F.), is a composite of certain factors representative of patient resources, needs, and productivity. The following items were recorded for each patient: (1) type of residence, (2) ownerships of residence, (3) number of hours of gainful employment during the last two weeks, (4) personal living assistance in relation to such things as bathing, dressing, and feeding, (5) persons giving daily living assistance; (6) sources of income, and (7) goods and services purchased. The index was used to rank patients and observe relative difference between various groups, and the changes in status from one time to another.

The preliminary trends were revealed by rating the patients by the index before fracture of the hip, and at six months and twelve months intervals after the occurrence of the fracture.

There was more frequent deterioration in the first six months among patients with low I.S.F. ratings prior to the fracture than among those with high prior ratings. There was greater likelihood of deterioration during the first six months interval after fracture than in subsequent six months intervals. There were more frequent deaths during the first year after fracture among those with lower I.S.F. ratings prior to fracture. There was more frequent I.S.F. deterioration in the six months interval after recent, initial cerebral infarcation than in the six months after the fracture of the hip.

Multiple Sclerosis: Management by Physiotherapy

Rona M. Van Leuven (Royal Free Hospital, London), PHYSIOTHERAPY, 47:102-108, April 1961

Before a rehabilitation program can be planned for a patient with multiple sclerosis, the physiotherapist must have a full knowledge of the neurological signs and symptoms present in her patient. She must also have carried out a detailed assessment of the patient's physical disabilities to present to the physician who is responsible for care.

The assessment falls into two categories: (1) neuromuscular assessment including spasticity, muscle weakness, range of joint motion, ataxia and poor co-ordination, and bladder function; and (2) assessment of functional activities for daily living involving all the activities essential to daily living both in the home and at work.

The pathological process of this disease cannot be altered by rehabilitative methods and the approach to therapy is an attempt to restore function by development of substitute motor pathways in the central nervous system. The aims of treatment are to achieve relaxation of the spastic muscles, to restore the balance of muscle power, to prevent the formation of contractures, and to prevent the formation of decubitus ulcers.

In the acute stage, bed rest is essential with attention given to positioning and full range of passive movements given twice daily.

In the chronic stage, there is general agreement that active exercise is the treatment of choice and proprioceptive facilitation techniques as advocated by Dr. Kabat have proved to be a valuable method of treatment. The use of ice packs for ten to fifteen minutes prior to treatment is helpful in the reduction of spasticity. Retraining in functional activities are included in the program.

The Management of Spasticity in Multiple Sclerosis

Helen Dinsdale (Royal Free Hospital, London), PHYSIOTHERAPY, 47: 99-102, April 1961

The effect of climatic conditions on the incidence and the severity of multiple sclerosis is shown by ecological studies, but whether temperature has any significant effect on spasticity is a problem which has a bearing on treatment.

Rather surprisingly, the studies show that although the disease is less common in warm climates, patients with multiple sclerosis do not improve in warm weather or in artificial conditions of raised temperature. In fact there is some evidence from therapy that cold applications for short periods temporarily reduce spasticity and are not deleterious to the patient.

The basic postural reflexes, as applied by Kabat, can be used to facilitate residual voluntary movement. When reflex activity favors movement in one direction, voluntary movement is encouraged in the same direction against sustained resistance.

It is important for the patient to have rest in the stage of active demyelination. When ataxia is a prominent feature, rest in bed has the disadvantage of making the patient forget balancing skills, and in this situation judgment is necessary with regard to the duration of inactivity which is beneficial. In the acute stage physiotherapy should be restricted to prevention of joint adhesions or faulty postures; and when power is returning, active movements should not be pressed until fatigue develops. When recovery occurs and mobilization is possible, mechanical devices which aid voluntary movement and prevent static postures are of greatest importance.

Drugs or physical methods of treatment do not appear to have any convincing effect on demyelination. Surgical methods may be directed towards alleviation of deformities or of reduction of spasm by rhizotomy.

An important function of physical medicine is to instruct spastic patients in the use of equipment to increase their mobility, and ascertain that relatives know what can be supplied in suitable cases.

The preservation of volition in movement is one of the urgent needs in spastic paraplegia and the goal of independence is the one most likely to stimulate the patient and preserve morale.

Cerebral Complications of Open-Heart Surgery

J. L. Ehrenhaft and M. A. Claman (State University of Iowa College of Medicine, Iowa City, Iowa), J. THOR. CARDIOV. SURG., 41:503-508, April 1961

Up to July 1, 1959, 241 operations were performed for defects and anatomic variations in the atrial and ventricular septum. Of this group, 162 patients were treated by use of the extracorporeal circuit and the remainder by total body hypothermia. Twelve of these patients displayed cerebral complications ranging from protracted somnolence to convulsions and hemiplegia. Two patients had undergone closure of septal defects under hypothermia. Ten patients had complicated con-

genital defects repaired employing extracorporeal circulation.

Two patients experienced delayed onset of hemiplegia, eight and fourteen days postoperatively. The remainder responded well immediately after surgery but experienced onset of symptoms on the first postoperative day. The authors concluded that in the latter cases cerebral edema played an important role, regardless of the initial insult.

Factors common to the ten patients whose operations employed extracorporeal circulation included no simple septal defects and long periods of cardiac arrest. The authors explored possible complications of the extracorporeal circuit and were unable to rule out antifoam embolization and the transmission of air across a septal defect during repair.

Progressive Fibrosis of the Vastus Intermedius Muscle in Children: A Cause of Limited Knee Flexion and Elevation of the Patella

O. Hnevkovsky (Second clinic for Orthopedic Surgery, University of Prague, Prague, Czechoslovakia), J. BONE JOINT SURG., 43B:318-325, May 1961

The purpose of this communication is to report a nine year observation period on twelve children in whom a marked limitation of flexion of the knee joint developed in a relatively short time. There was no history of trauma or inflammation of the joint and the knee was never swollen, warm or painful. Insufficient flexion prevented these children from squatting and they all walked with an extended knee although some knee motion was still present.

Previous treatment consisted of plaster splints, manipulations and physiotherapy in the form of massage and electrotherapy. In no case was treatment effective, in fact mobility of the knee steadily decreased.

In most of these children the patellar reflexes were diminished or absent. The patella was situated higher and more laterally on the affected side and knee flexion movements were not limited by pain. Since hip motion was normal, it appeared that flexion of the knee was limited by some condition affecting the vastus intermedius rather than the rectus femoris.

Surgical intervention was advised in all cases because of the failure of conservative treatment. The operative procedure consisted essentially of elongating the contracted fascia and vastus intermedius. The histological findings are described in detail and showed progressive fibrous degeneration of the vastus intermedius and rectus femoris.

Following surgery, the knees were immobilized in 90° flexion. Full flexion was not used to avoid difficulty in re-educating the quadriceps muscle. Further rehabilitation measures did not improve the degree of knee flexion obtained at surgery. Discussion of the possible etiology of this condition is included in the report.

Personal Responsibility in Accidents

Gerald Gordon (du Pont de Nemours & Co., Wilmington, Delaware) J. OCCUP. MED., 3:237-239, May 1961

The concept of the accident-prone individual arose in England during World War II. The pattern of behavior ("life style") is remarkably constant and is the sum total of all previous experiences. The persistent behavior of some persons suggests that something is seriously amiss within their nervous systems for they seem almost deliberately to take the self-destructive course—alcoholism, suicide, reckless driving. One study of general social adjustment concluded that a poor accident record was only one manifestation of an inadequate method of living.

Evidence seems to point to human failure as the predominant cause of industrial as well as motor vehicle accidents. Much more research is needed into the personal factor behind accidents. Since it is possible to predict accurately the number of highway deaths over a holiday weekend it ought to be possible to learn how to predict, from proper records, the persons who will become these statistics. Long range performance may be predicted from early minor evidences of human failure. Industrial medical records have shown that a person with a poor attendance record may shift to being a personnel problem.

Chance plays a much smaller role in "accidental" injury than previously assumed. Often the mere confrontation of the patient with the evidence of his destructive "life style" is corrective.

Management of the Aged Patient

J. G. Radford (Sydney, Australia), MED. J. AUST., 362-366, March 11, 1961

"Aged" is defined as physical or mental incapacity to contribute usefully to the common good or likelihood of requiring supportive help of some description. Five per cent of the population in Australia are old age pensioners (women over sixty and men over sixty-five years of age). There is double the number of women as compared with men. The advanced age group (beyond the mid seventies) make up 33.8 per cent.

Social considerations are very important in medical management. It is preferable to keep the patient in his own home. Pensioners' medical services are very little abused by overvisiting. General physical care includes diet, suitable activities and outings, adequate clothing, sleep and entertainment. Circulatory conditions head the field by a great distance, followed by osteoarthritis. Over half of the patients had at least two distinct conditions. Illustrative case histories and statistical tables elaborate these points.

Electromyography of the Supinators of the Forearm

Anthony Travill (Department of Anatomy, Queens University, Kingston, Ontario, Canada) and John V. Basmajian, ANAT. REC., 139:557-560

This study was done in conjunction with the electromyographic investigations reported previously on the pronator teres and pronator quadratus.

Eighteen young adult volunteers were the subjects for the experiment. Concentric needle electrodes were inserted through a small anesthetized area into the supinator, the biceps brachii, the pronator teres and pronatur quadratus. Simultaneous recordings were obtained with a six-channel electromyograph and its 35 mm. linagraph camera.

The subjects were positioned supine with the shoulder abducted to 90° and supported. Two series of recordings were made from each subject with the elbow extended and elbow flexed. The following motions were performed: (1) pronation from supinated position, (2) the "hold" position of maximum pronation, (3) maximum supination and the "hold"

position for supination and (4) the return movement of pronation to supination. Recordings were also obtained during slow, fast, and forceful movements against resistance.

The authors conclusions made from these observations are: (1) slow unresisted supination, regardless of the position of the elbow is brought about by the independent action of the supinator, (2) fast supination with elbow extended requires only the action of the supinator, (3) when the elbow is flexed and supination is performed rapidly, the biceps brachii assists. All forceful movements of supination against resistance require the co-operation of the biceps in varying degrees. Resistance added to supination in the hold position always caused the biceps to become active.

The authors believe the role of the biceps brachii is to reinforce fast supination or forceful supination and that the supinator muscle itself is the prime mover.

Psychogenic Pain

George L. Engel (University of Rochester School of Medicine and Dentistry), J. OCCUP. MED., 3:249-257, May, 1961

Pain is the cardinal manifestation of illness. Pain may result from the stimulation of peripheral pain pathways and thus has the neurophysiological characteristics of the peripheral system. The capacity to experience pain develops from numerous peripherally induced experiences but later may occur without the corresponding stimulation of the pain end-organ. Consciousness and attention are necessary to perceive pain. Pain, in the final analysis, is a psychic phenomenon. Detection and identification of pain qualities associated with stimuli arising from the periphery precede the other features of the pain description, understandable in terms of the patient's "psychic signature," his concept of body image. The more complex the ideation and the imagery involved in the pain description, the more complex are the psychic processes involved in the final pain experience. Generally, brief descriptions concordant with anatomical and physiological processes indicate a peripheral process. "Pain-prone" patients repeatedly suffer from a painful disability with or without peripheral changes. Guilt, conscious or unconscious, is an invariable factor in the choice of pain as the symptom. Pain may develop when external circumstances fail to satisfy the unconscious need to suffer, or as a response to a real, threatened, or fancied loss. Pain may occur when guilt is evoked by intense aggressive or forbidden sexual feelings. Location of pain may be determined by a past experience of the patient or by someone else or by pain wished for another person.

Psychiatric diagnosis may categorize psychogenic pain into conversion hysteria, depression, hypochondriasis, or schizophrenia.

The Treatment of Industrial Hand Injuries: Amputations

Burton C. Kilbourne and Eudell G. Paul (International Harvester Co., Chicago, Illinois), J. OCCUP. MED., 3:218-222, May 1961

The loss of part or all of a finger or hand is not an uncommon industrial injury. The frequency is related to the degree of mechanization plus employee experience. The new employee may lack full appreciation for safety, while the "old timer" is complacent. Extensive and irreparable damage may preclude surgical repair or reconstruction. Examination includes deformity, crushing, skin color and temperature, and sensation. Vascular rebound in the nail bed indicates adequate circulation. Roentgenograms and photographic records are important for diagnostic and medicolegal reasons. Devascularization, secondary thrombosis of digital arteries, extensive skin loss (except in the thumb), severed tendons, and crush fractures are indications for early amputation. The surgeon strives to preserve length and provide for a non-tender stump with adequate sensation. Closed amputations are usually performed. Following surgery, a compression dressing is applied and the hand is immobilized over a splint. Unless severe pain, fever, or drainage is present, dressings are left intact for five to seven days. Sutures are removed in ten to fourteen days, and warm soapy soaks and active exercises are started at the end of two and a half to three weeks. The patient's occupation is considered when revising an amputation. Fingers or functioning substitutes, such as deepening of the web space in the presence of thumb loss, are of definite value for dexterity. Amputees frequently complain that they cannot lift because of a feeling of insecurity in the absence of satisfactory grasp. When a single digit remains a working prosthesis can be constructed to allow for satisfactory pinching.

Problems Involved in External Cooling to Cardiac Cessation

J. R. Derrick, Kenneth R. T. Tyson, and Gunter Corssen. (Department of Cardiovascular Surgery and Department of Anesthesia, University of Texas Medical Branch, Galveston, Texas.) AMER. SURG., 27:140-2, February 1961

The need is emphasized for a consistently adequate method for external environmental hypothermia, both as a current surgical adjunct and as a tool in delineating or even reproducing safely that vague entity hibernation.

An experimental method is described in which thirty-three dogs were taken to levels of cardiac standstill and returned to a state of normothermia with relative consistency. The method utilized external environmental cooling ("passive" hypothermia) in which the dogs were immersed in a 50 per cent ice-water mixture and a separate ice pack around the head.

A promising pilot study utilizing angiotension with hypothermia, is mentioned.

Juvenile Ankylosing Spondylitis

G. Edstom, S. Thune, and G. Wittborne-Cigne (Clinic for Rheumatic Diseases, University Hospital, Lund, Sweden), ACTA RHEUM. SCAND., 6:161-172, March 1961

The authors report three boys (ages five, eight, and twelve) who were diagnosed as having ankylosing spondylitis. Since this is rare, unequivocal confirmation of the diagnosis was demonstrated by roentgenologic evidence of permanent changes in the iliosacral joints.

Nine other cases of cervical spondylitis accompanying chronic arthritis were described. In six of these cases dislocation between atlas and epistropheus was evident. The authors commented that attention would be paid to the cervical spondylitis in planning therapeutic regimens. Eight of these nine cases were girls.

Treatment of Dystonia Musculorum Deformans Progressiva

Winthrop M. Phelps (Children's Rehabilitation Institute, Baltimore, Maryland) ARCH. PEDIAT., 78:169-174, May 1961

The purpose of this article is to describe dystonia musculorum deformans progressiva as a disease entity probably due to a physiochemical disturbance and not of a central nervous system origin.

The disease begins as twisting or torsion-like involuntary motions, usually of the ankle, at about the age of six years in a previously normal child, with no history of illness or other associated symptoms. The process extends usually to the opposite hip and gradually progresses to include the other joints of the legs. Finally, torsion and hyperextension of the trunk results in the patient becoming bedridden. The arms are almost never involved; the cranial nerves are intact; speech, intelligence and emotional stability are normal.

Treatment consists of large doses of vitamin B6 and E, and quinine. Physical therapy is prescribed to prevent contractures which develop from muscle imbalance. The methods used by the Bobaths are especially adaptable to this condition although the involuntary motions are not actually "pathological reflexes."

The condition in fourteen cases with a follow-up of five to twenty years did not progress after continuous medication with large doses of vitamins B6 and E. Reversal of the condition took place almost completely in one case and partially in five others by the use of quinine. In those patients whose symptoms were not reversed by quinine, artane was helpful in reducing the involuntary motions when combined with the vitamin therapy. This condition must be carefully distinguished from Wilson's disease, postencephalitic conditions and athetoid cerebral palsy.

How Nurses Can Help the Child Who Stutters

Cora Jane Lawrence (Presbyterian Hospital, Albuquerque, N. M.), NURS. OUTLOOK, 9:285-287, May 1961

Some 1,400,000 children and adults in the United States stutter or stammer. Thus, one person in 143 is a stutterer. This is a symptom of an emotional conflict, and chances are remote that the person will recover without assistance.

Between the ages of two and four, children who repeat excessively seem unaware of their problem, which is called primary stuttering. When the older child begins to realize that his speech interruptions are unpleasant and that his speech differs from others, he becomes tense about speaking, and changes begin to take place in his personality which are reflected in his speech. The child then becomes doubly handicapped and the pattern of stuttering is set. This is called secondary stuttering.

Measures to prevent stuttering can be included in the nurse's health supervision on behalf of the preschool child such as helping the child feel that he is loved and accepted at all times, directing attention toward the things he does well, and setting good speech models in the home.

If the child really presents a problem of stuttering only highly trained persons, such as a private professional speech correctionist, a psychologist, or a physician, are thoroughly qualified to give specific advice.

The nurse's knowledge of normal speech development, accepted ideas of the causes and treatment of stuttering, and of community agencies, plus her excellent rapport with the family and child, help her contribute to the prevention and treatment of stuttering at a time when such help is most effective.

Cerebral Palsy

William Cooper (Department of Orthopaedic Surgery, Hospital for Special Surgery, New York, New York), J. CHRON. DIS., 13:507-514, June 1961

Approximately three infants in each 1,000 live births will eventually exhibit evidences of cerebral palsy. At present over 75 per cent of children enrolled in crippled children's school programs are diagnosed as cerebral palsy. Etiology may be summarized as follows: birth and obstetric factors 50 to 60 per cent; Rh and other blood type incompatability 5 to 7 per cent; postnatal factors 10 per cent; prenatal factors 10 to 15 per cent; unknown factors, 15 to 20 per cent. While there is no absolute specificity of relationship between the damaging agents and the abnormalities which follow, certain of these are most likely to damage a particular portion of the brain with typical results. Most cases may be classified as either spastic (65 per cent) or athetoid (30 per cent), although rigidity, tremor, mixed, and unclassified forms are also seen. Extent of disability is highly variable. Three major groups are described: mild involvement (25 per cent of cases) indicating ability to adapt fully to the requirement of independent living, moderate involvement (50 per cent) indicating partial independence, and severe (25 per cent) with great or complete dependence on others.

In treatment physical therapy has as major goals: sitting, standing, and walking in that order. Individual therapy is essential. Occupational therapy is more concerned with arm function, and aims for mobility and control as contrasted with the stability sought by the physical therapist and speech therapist. Bracing is of great value and may be employed for prevention and correction of deformities, control of involuntary movements, support of weakness, ease of handling, and function. Orthopedic surgery procedures are estimated to be of benefit to 15 to 20 per cent of patients, while neurosurgical techniques are newer and less proven but promising. Drug therapy for control of seizures, behavioral problems and spasticity may also be used. Finally, psychological and social therapy in the form of counselling and support for patients and family is often critical in making useful the gains achieved in other areas.

Abstracters for November

We are indebted to the following Association members for the carefully prepared abstracts that appear in this issue:

Mary Bennett
Margaret Bryce
Jean Cuthbertson
Joan Erback
Edna Forward
Mary Jane Hayes
Nanette G. Keegan
Jacqueline M. Lavin
Geraldine Midgley
Miriam J. Partridge
Nancy Watts

Book Reviews

Cerebral Palsy and Related Disorders: A Developmental Approach to Dysfunction. *By Eric Denhoff, M.D., Medical Director, Meeting School Children's Rehabilitation Center, Providence, Rhode Island; and Isabel Pick Robinault, Ph.D., Director, Professional Education, Institute for the Crippled and Disabled, New York City. Cloth, illus., 421 pp. New York: McGraw-Hill Book Co., Inc., 1960. $12.00.*

The collaboration of two authorities in the field of development of the exceptional child has resulted in a book which is outstanding for its exposition of an holistic philosophy of disorders arising from cerebral pathology and for an exhaustive review of literature in the field. Eric Denhoff, M.D., a pediatrician whose major interest lies in the study of the handicapped child, is Medical Director of the Meeting Street School of Children's Rehabilitation in Providence, Rhode Island. He is also associated with several clinical, teaching and research facilities. Isabel Robinault, Ph.D., began her career in occupational therapy, obtained her advanced degree in developmental psychology. At present she is Director of Professional Education at Institute for Crippled and Disabled, New York. Both authors are well known for their articles and lectures on this and related subjects.

The book is concerned with syndromes of cerebral dysfunction, which include cerebral palsy, mental retardation, epilepsy and hyperkinetic behavior disorder. The approach to evaluation and management of these syndromes arises from the observation that children so affected demonstrate a variety of neuromotor, intellectual, sensory and behavioral findings singly or in combination and varying in degree. Sections devoted with diverse clinical manifestations.

As a corollary to the grouping of all children with cerebral dysfunction into one spectrum, the authors delineate stages of behavior upon a developmental scale: (1) unorganized, (2) unco-ordinated, (3) poorly co-ordinated, (4) semi-co-ordinated, (5) bodily control, (6) early skills, (7) maturing skills. A concise outline describes the behavior picture and therapeutic principles from the standpoints of physical, occupational and speech therapies and the emotional aspect for each of these stages.

In closing a comprehensive section describing the many techniques of neuromuscular education, the following observation is made: "The well-intentioned goal of treating the whole child has been tackled with such quantitative enthusiasm, rather than qualitative perspective that many clinic children live a regimented life, rushed from department to department so that no one may miss the chance of doing something for them. At times their muscles improve, their education may take a little spurt, a few skills may even take on the aspect of relative precocity, but the individual, the core of individuality, breaks down under this outer regime at some time or other." The developmental approach advocated by the authors seeks to avoid this pitfall through use of an orderly system of evaluation and recommendation in all phases of growth.

An excellent review of key problems in the psychology of the cerebral palsied indicates current work in the field and directions of future research.

From the specialists in neurology, neurosurgery and orthopedics may arise disagreement with some of the senior author's conclusions and recommendations concerning technical procedures. That there is material for argument does not detract from the over-all value of the work.

There is liberal use of case histories; outlines and charts frequently take the place of narrative exposition. Bibliographies appended to each chapter are complete and reference sources easily located. An attractive and practical format adds to the book's noteworthiness.

This departure from conventional methods of consideration of separate manifestations of cerebral dysfunction will be a useful addition to the library of all those working with children handicapped by cerebral dysfunction.

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Manual of Care for the Disabled Patient. *By Arthur J. Heather, M.D., Medical Director, Eugene duPont Memorial Hospital and Rehabilitation Center; Section Chief, Department of Physical Medicine, Memorial Hospital; Associate in Medicine (Physical Medicine) Delaware Hospital, Wilmington, Delaware. Instructor in Physical Medicine and Rehabilitation, School of Medicine, University of Pennsylvania, Philadelphia. Cloth, illus., 119 pp. New York: The Macmillan Company, 1961. $3.75*

This attractively titled manual is likely to be disappointing to those working in some of the medical fields. The author's aim is to present to "the staff" simple treatment regimens for conditions common to hemiplegic, paraplegic, quadriplegic, arthritic and amputee patients. Among the topics are bladder and bowels, pressure sores, nutrition and prosthetics.

Completeness and representativeness of material are not found by this reviewer. The quality of presentation is uneven with no introduction, no summary, and an index that surpasses the text itself. The purpose of the book and the professional audience are not exact in definition. The subjects are treated with omissions of basic physical therapy principles, such as essential posture and body mechanics for bladder and bowel evaluation. Disproportion of material discussed is evident: almost one-third of the text paraphrases a book on prosthetics. Procedures often seem to be controversial without designation that this may be so. Certain inaccuracies appear, such as the recommendation on page 82 that, "In the above-knee amputee it is important that abduction and extension of the hip be maintained." This work is not recommended as a reference for physical therapists.

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Elementary Human Physiology. *By Terence A. Rogers, Ph.D., Department of Physiology, Stanford University. Cloth, 417 pp. New York: John Wiley & Sons, Inc., 1961. $6.50*

This book is a first edition textbook and was written for the undergraduate by a teacher of both graduate and undergraduate students. It is organized into physiological, metabolic and fluid systems all of which are integrated by means of a unifying discussion of the regulatory mechanisms of homeostasis. The concept of homeostasis is introduced in an early chapter and it is used as a theme thereafter.

The author does not follow the method of referring to investigators and their specific contributions in his presentation of important physiological principles. This simplifies the text, without doubt, for the student who is being introduced to a subject containing much unresolved knowledge. Other more complete texts may furnish the information to the inquiring reader. The author ends many chapters with references to physiological articles appearing in the *Scientific American* during the last twelve years.

There are a number of illustrations some of which are crude in their simplicity while others are of the type commonly seen in most physiology texts.

In general, the information is too elementary for the usual reader of *The Physical Therapy Review.*

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A Synopsis of Contemporary Psychiatry, Second Edition. *By George A. Ulett, B.A., M.S., Ph.D., M.D.; and D. Wills Goodrich, M.D. Cloth, illus., 309 pp. St. Louis, Mo.: The C. V. Mosby Company, 1960. $16.50.*

This brief text of psychiatry is intended for use as a quick reference for psychiatric residents, medical and psychological interns, medical students, nurses and the general practitioner. It is of a size to just fit in the side pocket of a clinic coat and so is readily available.

The outstanding characteristics of this hand book are conciseness, excellent organization, and wide scope of material covered. It might be considered an outline, with just enough discussion to clarify the essential points. The table of contents is quite complete and a desired item can be located quickly. It is also well indexed so that, between the two, no time is lost in finding the page of the needed information.

The contents are divided into three general areas: history taking and diagnostic procedures; clinical syndromes; and therapeutic measures. At the end of each chapter and of some subdivisions is a list of suggested readings when additional information is desired. Psychological examinations are included in diagnostic procedures and are discussed briefly in regard to purpose of each test and interpretation.

The second edition of this hand book shows much revision of the section on therapeutics, with special attention being given to the psychotropic drugs. The tabular information clarifies the therapeutic problems resulting from recent discoveries. Special needs are not overlooked as is evidenced by chapters on the management of civilian disasters, psychiatric problems in military setting, and forensic psychiatry. The authors have written a practical and useful book.

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Introduction to Medicine and Medical Terminology. *By Louise Espey Rollo, A.B., Instructor, Medical Terminology, Graduate School, United States Department of Agriculture; Nosologist, United States Department of Health, Education and Welfare, Public Health Service, Washington, D. C. Cloth, 356 pp. Philadelphia, W. B. Saunders Co., 1961. $5.00.*

The preface gives a brief summary of this book. The opening paragraph states, "This book has been designed to give the beginner in medicine or nursing, and all persons who deal with health matters, a panoramic view of the whole range of disease and injury, and a closer inspection through the study of the complex medical language that doctors use to name these ailments, their symptoms and causes." The book fulfills its objective. It is well planned, interestingly presented, and informative. There is no padding with verbiage.

The book is divided into five units and has twenty-three chapters. There is a list of references, and an index which is outstanding. It gives an alphabetical list of "prefixes", "suffixes" and "stems", as well as an index of contents. In addition, there is a list of medical terms and stems used at the end of each chapter and/or unit. Every effort has been made to make the information contained in this book easily available.

The first unit deals with the general considerations of health and disease. It considers the present day concept of health, and prospect of health for all, gives a background of medical practice in early times, and considers attitudes toward disease today.

Unit Two deals with fundamentals of medical terminology and includes a chapter each on the method of naming diseases, composition of medical terms, a plan of study, and a list of prefixes and suffixes with their definitions, examples of their uses and an indication of their origin, (G) Greek, (L) Latin.

The third unit treats the causes, classifications, and general types of disease with a long list of stems relating to parts of the body for anatomical location. Definitions of commonly encountered medical terms and descriptive modifiers are given, as well as symptoms, signs and manifestation of disease in general. Principles of classification and etiology are discussed briefly.

Unit Four deals with injuries and accidents. A statistical analysis indicates their importance to the health of the nation. The change that has been brought about by the concept of rehabilitation is noted. The nature of injuries is discussed.

Unit Five is entitled, "Selected Diseases." It covers 60 per cent of the book. The diseases are classified as (1) infectious and parasitic; (2) neoplasms; (3) allergic, endocrine, metabolic and nutritional; (4) Diseases of the blood and blood-forming organs; (5) mental disorders; (6) organic diseases of the nervous system; (7) diseases of the eye and ear, and speech disorders; (8) certain diseases of heart, arteries, and veins; (9) certain respiratory, digestive, skin and musculoskeletal diseases; and (10) genitourinary and obstetrical conditions. Emphasis is primarily on terminology, synonyms, symptomatology, and etiology if known.

As stated in the preface, this book would be helpful to anyone starting

out in the medical or medically allied fields. Furthermore, it is an excellent source of general information for those already in the field. It ably emphasizes the importance of semantics. It has long been the opinion of the reviewer of this book that a knowledge of word construction adds immeasurably to the ability to correlate information, and minimizes the need for pure memorization.

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Annual Review of Physiology, Vol. 23. *Victor E. Hall, University of California, Editor. Frederick A. Fuhrman and Arthur C. Giese, Stanford University, Associate Editors. Cloth, 674 pp. Palo Alto, California, Annual Reviews, Inc., 1961. $7.00.*

There are several chapters in the twenty-third volume of Annual Reviews which are of considerable interest to those in the field of physical medicine and the physiology which underlies it. The most important is undoubtedly the article by Mommaerts, Brady, and Abbott on muscle physiology. The authors have not given an all inclusive review of the field but have selected topics which at the present time are of major importance. Dr. Mommaerts and his co-workers have made major contributions in this area and their review is that of a senior researcher who looks at his own field with an analytical and critical eye. The result is a superb article which will be of permanent value to those engaged in the physiology of muscle. Excitation and conduction is treated by Frank and Fuortes while three articles are devoted to the central nervous system. There is a review on somatic and one on visceral functions and a third article on brain functions and learning which completes the physiology of the central nervous system. Other reviews which are important to the field of physical therapy are the article by Bohr on peripheral circulation and by Shock on the physiological aspects of aging. There is a paper by Florey on transmitter substances which has a considerable value for the basic physiology of conduction at synapses and at the neuromuscular junction. As always, the quality of the reviews is extremely high. Through the years, annual reviews has kept up its standards remarkably well and while it is obviously impossible to review these articles, it can be said that these are valuable volumes for the teacher of physiology who wants to keep abreast of areas outside of his own field of research. In recent years it has become customary to have a prefatory chapter written by a senior statesman in the field of physiology. This year this chapter is by Dr. Karl F. Schmidt, Emeritus Professor of Pharmacology at the University of Pennsylvania, who writes about "Pharmacology in a Changing World." His article is timely because this year the first separate *Annual Reviews of Pharmacology* will appear and also the first International Congress of Pharmacology will take place. Dr. Schmidt has been one of the pioneers in pharmacology and describes in a most interesting way how this has developed during his lifetime. Entirely apart from the value of this article as a review of the development of a scientific discipline, there are several points which are of considerable value to the field of physical medicine and physical therapy. The author points out that pharmacology which is essentially a therapeutic specialty has not always received the appreciation of the medical professions which is its due. Medicine has for many generations been essentially a diagnostic undertaking with therapy following more or less automatically and specifically therapeutic areas are, therefore, not always fully appreciated. Physical medicine and physical therapy also are primarily a therapeutic area, and it is interesting to see how another field laboring under this same disadvantage has developed itself into the highly respected specialty that it is today. Pharmacology has done this by research and through broadening its interests by contacts with physiology and the other basic sciences. In so doing it found its own area of research and because of this became a respected field. The second analogy between physical medicine and pharmacology is found in the fact that both fields are in the area where the basic sciences and the clinical sciences meet. Here also a unique development can occur which is of essential importance to the development of medicine as a whole. Physical medicine and pharmacology both have an opportunity because they have a firm foundation on the one side in the basic sciences and on the other side in clinical application. Finally Dr. Schmidt points out that pharmacology has encountered some dangers due to the fact that the sometimes spectacular clinical results of new drugs tend to obscure the real importance of pharmacology which is to provide facilities and intellectual climates in which gifted young people will want to work and will be encouraged to follow-up their ideas. Physical medicine and physical therapy also are in danger that clinical work and clinical success will detract both physicians and physical therapists into the immediately successful clinical application forgetting in the meantime that the development of their field depends on the intellectual and research basis that can be established. Physical medicine and physical therapy have indeed much in common with pharmacology. Pharmacology has accepted its academic and scientific opportunities and as a result has become one of the most respected fields in the medical fraternity. Physical medicine and physical therapy can do the same thing and go through a period of equally intense academic development. Under the guidance of a man such as Dr. Schmidt, pharmacology made that choice about a generation ago. The future of physical medicine will depend on whether or not we see our opportunities as clearly as the pharmacologists of that day saw theirs.

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Medical Almanac, 1961-1962. *Compiled by Peter S. Nagan, M.A., M.S. Paper, 528 pp. Philadelphia, W. B. Saunders Company, 1961. $5.00.*

This book is just what the title implies—an almanac of medical facts compiled from various state and federal government bulletins and the publications of the American Medical Association. All the various medical organizations are listed giving the names of present officials in each. A complete listing of the many American and foreign medical journals is given. Under education and research, all medical schools are listed with number enrolled, tuition and clinical facilities. Other subjects covered are medical

manpower, vital statistics, costs of illness, hospital statistics, medical finances, regulations and schedules, historical facts and foreign medical systems.

Much of this material has been compiled into chart and tabulation form and all sources for this information are given. A complete index of all the information is included in this volume. The purpose of this book is to have all the descriptive and statistical facts of the non-clinical side of medicine assembled in one volume. It is a great source of information for medical administrators, physicians, librarians, editors, writer, government officials or anyone searching for these medical facts.

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Key and Conwell's Management of Fractures, Dislocations and Sprains. *By H. Earle Conwell, M.D., F.A.C.S., Associate Professor of Orthopedic Surgery, University of Alabama, School of Medicine; and Fred C. Reynolds, M.D., Professor of Orthopedic Surgery, Washington University, School of Medicine, St. Louis. Cloth, illus., 1153 pp. St. Louis. C. V. Mosby Co., 1961, $27.00*

This seventh publication appears to have successfully fulfilled the purpose for which it was written as did the six previous editions, the first of which appeared in 1934. That purpose was to eliminate obsolete methods of treatment, delete repetitious material and replace with recent advances in the management of trauma. The authors, who are extremely well qualified through education and experience, have presented what they have used and found practical and reliable. The book is primarily aimed at the general practitioner, surgeon and orthopedist and, therefore, will be most helpful to those groups.

It is difficult to appraise accurately in its entirety any edition of this text for two reasons: (1) the reviewer is not a physician and therefore not in a position to evaluate diagnostic procedures and the methods presented in the immediate management of trauma; (2) the bulk of this volume makes it difficult for a reviewer to read it thoroughly.

Those physical therapists wishing to use it as a reference will find it a comprehensive and most informative and worthwhile text. It is divided into two major parts, the first dealing with definitions, classifications, causes, diagnosis complications and methods in general management of fractures. The second and greater portion of the volume relates to specific traumatic injuries with which the physical therapist is frequently concerned. Detailed and specific information is presented relative to anatomic considerations, methods of examination for diagnosis and the management of each injury.

Due to the death of J. Albert Key, M.D., since the publication of the sixth edition, his associate and now his successor, Fred C. Reynolds, M.D., consented to co-author the latest edition. The format remains unchanged but there has been included a greater number of excellent photographs and many chapters have been greatly revised. Those sections dealing with deceleration injuries, hand injuries and the use of the hip prosthesis are of very great interest. The several editions have been among the favorite texts widely used in medical schools. Most likely this latest edition will continue to be an outstanding text and reference.

The reviewer believes the few pages devoted specifically to physical therapy in treatment of bones and joints has not been sufficiently revised since the publication of the second edition in 1937. This criticism seems more pertinent when in the preface the authors indicate that they continue to stress the importance of looking upon the injured individual as a whole being.

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Congenital Malformations. *Edited by G. E. Wolstenholme, O.B.E., M.A., M.B., M.R.C.P. and Celia M. O'Connor, B.S., Editors for Ciba Foundation. Cloth, illus., 308 pp., Boston, Little, Brown and Co., 1960. $9.00*

The Ciba Foundation, whose financial support is provided by the chemical and pharmaceutical firm, is an international center where scientists meet at international symposia five or six times a year to exchange facts and ideas on subjects of scientific interest.

Twenty-nine physicians and researchers from all parts of the world participated in the Ciba Foundation Symposium on congenital malformations conducted in London from January 19 to 21, 1960. This symposium dealt with the current research being conducted on congenital malformations. A total of twelve papers were presented in a scientific, well-organized manner; group discussion followed the reading of each paper.

Some pertinent topics discussed were: experimentally induced congenital malformations, the role of maternal age in pregnancy, the whole enviroment of the embryo with emphasis on the nutrition and metabolism of the mother, the role of the placenta in pregancy was discussed with emphasis on the passage of noxious substances across the placental barrier and the effects of radiation in congenital malformations.

Numerous statistical graphs, microscopic pictures and diagrams effectively supplemented the material. The bibliographies accompanying each section were excellent in most cases. The subject index and index of authors greatly facilitated the finding of specific information and authors.

For the individual interested in the subject of congenital malformations this book furnishes enlightening, informative reading as one gets a bird's eye view of the current research now being conducted by the world's foremost authorities on this subject.

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Kranz: Manual of Kinesiology. *Clem W. Thompson, Ph.D. Professor of Health and Physical Education, Mankato State College, Mankato, Minnesota, formerly of Boston University, Boston, Massachusetts. Paperback, illustrated, 159 pages. St. Louis, C. V. Mosby Co., 1961. $3.75.*

The fourth issue of this manual has been prepared by Clem W. Thompson, Ph.D., Professor of Health and Physical Education, from Mankato State College in Minnesota. There is no stated connection with Leo G. Kranz, the previous author of *Kinesiology Manual.* This is a manual for the student in a college or university program, primarily in undergraduate and graduate physical education. The author's stated

purpose in revision of this manual is to include more material on the physics of motion and on individual muscle action, and he has included instructions for palpation of muscles. He purposely revised and enlarged the section on laboratory and review exercises at the end of each chapter in order to give "additional learning experiences for superior students."

The manual includes eleven chapters beginning with the description of joints and their movements and including eight chapters on analysis of industrial joints and the muscles involved in these joints from the shoulder girdle through the ankle and foot with a special chapter on the wrist, hand, and fingers and a chapter on the trunk. There is a chapter on analysis of activities and final chapter on factors affecting motion and movement.

Each chapter begins by a brief outlined analysis of the bones, movements, and observations possible for the joint discussed. This is followed, page by page, with a rather detailed analysis of the muscles involved in the joint under discussion. Each muscle is discussed as to origin, insertion, action palpation, leverage, and observations possible as well as exercises suitable for development of this muscle. It is not unlike the previous manual but it does include new sections on palpation for each muscle and a description of the type of leverage represented. Each muscle is shown in line drawings, indicating origin, insertion, and skeletal arrangement. Most of the drawings have been redone.

The material for each muscle is presented in the double column style. The print of this edition is improved over previous editions and the paper texture is harder. The line drawings are well done and clear. The only bibliography present is a short one at the end of the manual giving six basic references. These are kinesiology references and contain no gross anatomy texts. The author has included at the back of the manual several tear-out sheets of drawings of the anterior and posterior view of the skeletal system for use by the student in studying and in completing class assignments. These are perforated so that they may be removed and turned in to the instructor.

It is doubtful that this volume will prove to be very satisfactory for the purposes stated by the author. Inaccuracies in description of muscle action, in instructions for palpation of muscles, in terminology used for a description of muscle action appear too frequently to give this volume a reliable place on a reference shelf or in a student's library. In some instances muscles are dealt with as they may individually perform and reference to group action is minimized. This is contrary to the views of most who are concerned with an analysis of motor performance. For the development of one muscle the recommended exercises may be combined activities such as chinning, rope climbing, bar bell exercises while for another the prescribed program may be a simple procedure such as active dorsiflexion of the foot. These inconsistencies will make this manual difficult for a student to utilize. Previous editions appear to this reviewer to be more complete and indeed more accurate.

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Respiration, Physiologic Principles and Their Clinical Application. *By P. H. Rossier, A. A. Bühlmann and K. Wiesinger. Edited and translated from the German edition by Peter C. Luchsinger and Kenneth M. Moser. St. Louis, C. V. Mosby Co., 1960. Price $15.75.*

The book is the result of international co-operation between the translators and the original authors, to provide an English language textbook which would be comprehensive in the field of cardiopulmonary physiology and its clinical applications. The authors and translators have produced a very valuable volume which covers the entire field of respiratory physiology. The book is in four major parts. The first deals with the normal physiology of respiration, the second part deals with methods in pulmonary function, the third part deals with the pathophysiology of respiration and the fourth part deals with pulmonary insufficiency in clinical practice. In discussing the normal physiology of respiration the authors are aware of the fact that respiration is an inter-related chain of events which includes not only respiration itself but also gas exchange within the lungs, gas transport by the blood and the circulation in the lung, and finally the regulation of all these processeses by the central nervous system. In the chapters on normal physiology almost every aspect of pulmonary physiology is covered.

In several instances the effect of procedures which are important to the field of physical medicine, such as exercise and respiration, is discussed. There is an excellent chapter on the importance of blood and blood circulation in transmitting the respiratory gases to the tissues including such points as oxygen level and oxygen balance. The relation between hemoglobin and oxygen are very adequately discussed. The third chapter deals with the transfer of respiratory gases to the blood through the lung alveolus. The most interesting chapter to the neurophysiologist and possibly to the field of physical medicine deals with the mechanisms of regulation of respiration followed by a discussion on tissue respiration. Other chapters are devoted to cyanosis and dyspnea. Probably the most important part of the book for those who are not specifically engaged in respiratory physiology are the chapters on pulmonary function tests which again include exercise tests. Often these tests become part of a complete medical examination and this book gives a very adequate description of the physiological significance. The two parts of the book which deal with the pathology of respiration discusses a variety of diseases and also the fundamental syndromes which are found in the pathology of respiration. There is an entire chapter devoted to methods of artificial respiration in which electrical stimulation of the respiratory musculature is only mentioned in passing. Evidently this method has not received the attention in Germany that one originally thought it would have. The American results with some of the electrical respirators also have not proven very satisfactory. A very valuable part of the book is the bibliography which consists of eighty pages. The references are organized according to the individual chapters in the book. There is also a very elaborate index which is almost essential in a book that contains so large an amount of data. The authors and translators have produced a book in the English language which is very likely to become a standard textbook in this field. The book is richly illustrated and both printing and figures are of the high quality that one expects from the C. V. Mosby Company.

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What's New

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New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review*.

110. Cartilage Cap

A newly developed cartilage cap has been designed for the treatment of difficult knee injuries that involve the ligament and cartilage area. Pressure is exerted on the critical area on each side of the knee by sponge cartilage pads retained in pockets. Pressure is delivered by the elastic thread in the knitted cap, and by three spiral stays running directly over each pad, as shown in the photograph. Of added value is the fact that this new cartilage cap actually delivers more pressure when the knee is bent, a position that puts added strain on the injured cartilage. The sponge pads help to keep the cap from wrinkling and irritating behind the knee. Truform Anatomical Supports.

111. Muscle Trainer

Model MT EMG Muscle Trainer is a transistorized EMG with an audio output to a built-in loudspeaker or to an earphone. Because of its small size and light weight, the Model MT is both technically and economically a unique aid for the physician with patients recovering from polio, stroke, and other disorders or injuries affecting the muscles.

In bed, sitting up, or walking around, the patient may have the Model MT beside him, carry it suspended from a shoulder strap or fastened to a belt. He may be connected to the instrument by a variety of imbedded wire surface electrodes. Like any EMG, the Model MT will detect muscle action potentials too minute to cause any visible movement. The Meditron Company.

112. Vasograph

Vasograph, an integrated instrument for quantitative vascular diagnosis, consists of transducers and pick-up devices, controls, standardization chambers, pressure control system, amplifiers and direct-writing recorders. The Vasograph has been in use in clinical and medical research laboratories for the past six years, and has proven valuable in determining the presence and extent of vascular disease and in the location of vascular obstructions. This instrument enables the clinician to make vascular investigations that would be extremely difficult by other methods or be a hazard to the patient. Additional features include reduced investigation time and fewer patient expenses. The instrument has proven useful in the fields of internal medicine, physical medicine and rehabilitation, vascular surgery, and physiological research since the integrated instrument can be used for such simple tests as the determining of sensitivity in subjects to smoking or to measuring the segmental blood flow in the muscle of the forearm or calf. The Vasograph has five basic measurements, from which thirty to forty different studies can be made. Typical of these studies are venous or arterial insufficiency, peripheral resistance, effectiveness of a sympathectomy, locations of obstructions, effectiveness of vascular surgery, collateral circulation and many others. A list of clinical literature references is available describing Vasograph applications. The Vasograph is available in four different models (single and multi-channel) with price ranges depending on model and accessories. Delivery is quoted from thirty to sixty days. Electro-Medical Engineering Co.

113. Folding Admittance Chair

Folding admittance chair with a rear luggage rack is 22 inches wide when open or 8 inches wide when folded for storage. Luggage carried on the rack is out of the way for the patient and leaves the attendant's hands free to propel the chair. Folding footrests, adjustable in height; safety brakes for safer entry and exit of patient; plastic reinforced slip-in upholstery providing firm, even support; and hard rubber semi-pneumatic tires, are features of this sturdy wheel chair. Hospital Supply Division of American Hospital Supply Corporation.

Positions Available

Physical therapy practice acts have been enacted in 38 states. A listing of State Board Examinations appears in the advertising pages.

NEW ENGLAND

POSITIONS AVAILABLE—For one registered supervisor and staff therapists. Opportunity for varied experience in rapidly expanding Physical Medicine and Rehabilitation Department in 160-bed general hospital. Excellent personnel policies. Salary open. Miriam Hospital, 164 Summit Ave., Providence, Rhode Island.

PHYSICAL THERAPIST—For department in a rehabilitation center, part of a general hospital, affiliated with medical school. On campus of state university. Salary commensurate with ability and experience. Write: Adm., DeGoesbriand Memorial Hospital, Burlington, Vt.

STAFF PHYSICAL THERAPISTS—Two immediate openings in general hospital. Moving to larger quarters. Department under supervision of physiatrist. Wide variety of in- and outpatients. Forty hour week, 4 weeks paid vacation, 8 paid holidays, 10 days sick leave, fringe benefits. Salary based on experience. Apply Director of Physical Medicine, Waterbury Hospital, Waterbury, Conn.

MIDDLE ATLANTIC

QUALIFIED PHYSICAL THERAPIST—Recent graduate accepted. Non-sectarian residential center providing intensive treatment for 40 C.P. children. Salary open, good personnel policies. August vacation, Christmas holidays. Apply: Director, Home of the Merciful Saviour, 4400 Baltimore Avenue, Philadelphia 4, Pa.

PHYSICAL THERAPIST—Female, qualified, in fully-equipped orthopedic surgeon's therapy department. Therapist to be in charge of department, working alone with children and adults, under doctor's supervision. Salary open. Contact Dr. Dale C. Bouton, 261 Liberty St., Newburgh, N. Y.

STAFF AND ASSISTANT CHIEF POSITIONS—Metropolitan Hospital, New York Medical College, Metropolitan Medical Center, 1901 Second Avenue, New York City. Clinical services; research opportunities; participation in graduate education; salary open depending on qualifications. Contact: Phyllis Kraut, R.P.T., EN 9-6300, Ext. 356.

THREE PHYSICAL THERAPISTS—Department of Physical Medicine and Rehabilitation of the Edward J. Meyer Hospital, a 1,000-bed county hospital, serves a population of one million. Forty-three rehabilitation staff members. Hospital is a principal facility of the University of Buffalo and provides regular tuition for students of medicine, physical therapy, nursing, rehabilitation counseling and speech therapy. Well equipped clinics, with 2 full-time physiatrists. Salary $4,500-5,400 with liberal personnel policies. Apply: Chief Physiatrist, Meyer Memorial Hospital, 462 Grider St., Buffalo, N. Y.

ASSISTANT CHIEF PHYSICAL THERAPIST—For established growing department in 500-bed general hospital. Full-time certified physiatrist in charge of department. Forty hour, 5 day week; sick leave; vacation. Competitive salary based on qualifications. Contact M. M. Clippinger, Assistant Superintendent, Conemaugh Valley Memorial Hospital, Johnstown, Pa.

STAFF THERAPISTS—Licensed or eligible for license in New York State wanted immediately. Applications continually accepted. Central Mohawk Valley Private Children's Hospital Center with 52 beds providing physical therapy and rehabilitation services to in- and outpatients. Recent female graduate accepted but salary open for experience. Three weeks vacation, 7 paid holidays. Apply Anthony H. Salerno, R.P.T., Chief Physical Therapist, Children's Hospital Home, 1675 Bennett Street, Utica, N. Y.

STAFF PHYSICAL THERAPIST—In a general hospital accessible by train, subway, bus, or car. Please contact Sister M. Patricia Ann, O. P., at Mary Immaculate Hospital, 152-11 89th Avenue, Jamaica, N. Y., or call AX 1-3300.

STAFF PHYSICAL THERAPIST—General hospital, 518-beds; variety of cases; 5 day week; good starting salary; regular increment; liberal benefits. Apply Personnel Department, St. Joseph Hospital, Paterson 3, N. J.

REGISTERED PHYSICAL THERAPIST—Excellent opportunity. Modern suburban hospital. Liberal personnel benefits. CP training preferred. Contact Personnel Office, Morristown Memorial Hospital, Morristown, N. J.

MALE PHYSICAL THERAPIST WANTED—Graduate AMA approved school; 2000-bed NP VA hospital. Start $4,345 or $5,355 a year depending on experience. Write: Personnel Division, VA Hospital, Lyons, N. J.

PHYSICAL THERAPIST—Expanding department. Physiatrist in charge: 255-bed suburban hospital 15 miles from N.Y.C. Residence on grounds. Salary based on qualifications. Apply Personnel Director, The Valley Hospital, Ridgewood, N. J.

PHYSICAL THERAPIST—With supervisory and training experience, desired at Saratoga Spa, N. Y. Must possess license in New York State. Salary range $5,320 to $6,500 per annum. Permanent Civil Service status. Director, Saratoga Springs Commission, Saratoga Springs, N. Y.

PHYSICAL THERAPIST

For general hospital near New York City. Affiliated residency N.Y.U.-Bellevue; active physical medicine and rehabilitation program. Must be eligible for registration in New York State. Liberal benefits. Start: $4,420 with yearly increments of $290 to $5,290. Contact Personnel Supervisor, Grasslands Hospital, Valhalla, N. Y. LY 2-8500, Ext. 61.

WANTED—Full time and part time staff physical therapist for suburban Philadelphia public health nursing agency. Gives consultant service to staff nurses and treatments to homebound patients. Salary range $4,602 to $5,902 depending on experience; 5 day week; 1 month's vacation; retirement plan. Apply: Mrs. Elizabeth Ann Groff; Executive Director, Community Nursing Service, Delaware County, 60 S. Lansdowne Avenue, Lansdowne, Pennsylvania.

SOUTH ATLANTIC

CHIEF PHYSICAL THERAPIST—For Medical Center, Sandy Spring, Md. Modern equipment. Mostly orthopedic cases. Salary $5,000. Apply Mrs. Louise Leonard, Medical Center, Sandy Spring, Md.

PHYSICAL THERAPIST—For broad community-wide health program in urban county located adjacent to Washington, D.C. Excellent working conditions. Salary range $4,540 to $5,677. Car provided. Prince George's County Health Department, Cheverly, Md.

PHYSICAL THERAPISTS—Positions in a network of 10 general hospitals. No travel required. Physiatrist in charge of physical medicine program. Consideration given to recent graduates as well as experienced therapists. Forty hour week, 4 work weeks vacation. Employee health program plus other benefits. Salary from $5,340-$6,640 or $5,880-$7,380, depending upon training and experience. Miners Memorial Hospital Association, Box #61, Williamson, West Virginia.

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Occupational Therapists and Physical Therapists—For treatment of handicapped children in a public school. Five day week, ten month school year. Salary $4,300-$6,300 ten intervals of $200. Experience evaluated. Apply Personnel Director, Baltimore Public Schools, 3 East 25 Street, Baltimore 18, Maryland.

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QUALIFIED PHYSICAL THERAPIST (two) for outpatient cerebral palsy treatment center. Starting salary $4,550 per year. Two months vacation, liberal sick leave benefits. Liberal personnel policy. Contact Robert Schlitt, Director, Peninsula Cerebral Palsy Training Center, 901 24th Street, Newport News, Va.

JOB AVAILABLE—For qualified physical therapist in active community, outpatient rehabilitation center. Salary open. Apply: Miss Eleanor J. Bader, Executive Director, Delaware Curative Workshop, Inc., 16th and Washington Streets, Wilmington, Delaware.

WANTED IMMEDIATELY: Two (2) Staff Physical Therapists, expanding department of an orthopaedic clinic. Department under direction of a physiatrist. Vacation, sick leave, holidays. Inquire: Arthur E. White, M.D., Anderson Clinic, South 25th Street & Army-Navy Drive, Arlington, Va.

PHYSICAL THERAPIST—Opening available in a general outpatient community treatment program including physical therapy, occupational therapy and speech therapy. Affiliated with the National Society for Crippled Children and Adults, Inc. Five day week, liberal vacation and sick leave, Blue Cross Hospitalization Plan, social security. Salary open. Apply: Mrs. David L. Black, Volunteer Director, Junior Service League Orthopedic Center, 1219 Dunn Avenue, Daytona Beach, Florida.

REGISTERED PHYSICAL THERAPIST—For the Cerebral Palsy Center of Atlanta, Inc. Day school program, clinic and outpatient services for 150 children ranging in age from 18 months to 18 years. Five-day work week, public school holidays, 2 weeks summer vacation, and sick leave. Salary open. Send qualifications to Mrs. Harold M. Seymour, Administrator. The Cerebral Palsy Center of Atlanta, Inc., 1815 Ponce de Leon Avenue, N. W., Atlanta 7, Georgia.

PHYSICAL THERAPIST—One immediately, another January 1962 in air-conditioned cerebral palsy school. Five-day week, public school holidays, 1 month summer vacation, sick leave. Salary open. Contact Mrs. A. M. Inman, Executive Director, Greensboro Cerebral Palsy School, 1601 Gatewood Ave., Greensboro, N. C.

EAST NORTH CENTRAL

LUTHERAN GENERAL HOSPITAL—Has immediate opening for a staff physical therapist (female). Existing new 316-bed general hospital in future medical center, located in progressive northwest suburb of Chicago, Illinois. Attractive, comfortable living quarters nearby. Young, active medical staff. Paid holidays and vacation, 40 hour week, retirement program. Salary open. Apply: Personnel Department, Lutheran General Hospital, 1775 Dempster, Park Ridge, Illinois.

PHYSICAL THERAPIST—To work in cerebral palsy treatment center, major case load with young children. Under medical supervision, plus all consultative services. Salary range $5,450 to $6,250. Well established personnel policies, position covered by Social Security. Work-year is 10½ months. Additional training in specialty available after one year. Write Executive Director, Detroit Cerebral Palsy Center, 261 Brady, Detroit 1, Michigan.

PHYSICAL THERAPIST for general hospital work. Completely new facilities, four therapists, University affiliation. Complete program of benefits including three weeks vacation to start. New 100-bed rehabilitation-oriented facility being developed for chronically ill. Write: Mark Slen, Assistant Administrator, Parkview Memorial Hospital, Fort Wayne, Ind.

MUNICIPAL HOSPITAL of 708 beds needs two registered physical therapists (male and female) for expanded outpatient and inpatient program with wide variety of cases. Liberal personnel policies, 40 hour week, 2 weeks vacation, and sick leave. Write to R. E. White, Personnel Office, Hurley Hospital, Flint 2, Michigan.

WANTED—Male or female staff physical therapist for department of Physical Medicine and Rehabilitation in 600-bed general hospital. Forty-hour week, 3 weeks vacation, sick leave, insurance and retirement program, and other outstanding benefits. Write: Dr. Herman J. Bearzy, Miami Valley Hospital, Dayton 9, Ohio.

REGISTERED PHYSICAL THERAPIST OR CERTIFIED—Excellent opportunity to participate in interdisciplinary team of physicians, physical, occupational, speech and music therapists. Adult outpatient rehabilitation facility in hospital setting. Liberal personnel policies. Salary open. Apply Administrator, Mary Free Bed Guild Children's Hospital and Orthopedic Center, 920 Cherry St., SE Grand Rapids 6, Michigan.

STAFF POSITION FOR REGISTERED THERAPIST—Busy department in 850-bed general hospital. Variety of cases. Many employee benefits including 3-week vacation, free laundry, free Blue Cross after one year. Living accommodations available. Contact John B. King, Director of Personnel, Presbyterian-St. Luke's Hospital, 1753 West Congress Street, Chicago, Illinois.

WANTED: STAFF PHYSICAL THERAPIST—Female, graduation from approved school required. General hospital, 471-beds. Major expansion program in progress with new equipment and quarters completed for Physical Therapy Department. Salary range $4,200 to $4,800. Forty hour work week plus liberal fringe benefits. Apply Personnel Director, Butterworth Hospital, Grand Rapids 3, Michigan.

STAFF PHYSICAL THERAPIST—For 400-bed private general hospital with large active volume outpatient department. Liberal salary range and employee benefits. May be experienced or recent graduate. Licensed in Wisconsin or eligible to take license examination. Well-equipped, air-conditioned department. Excellent working conditions in one of midwest's foremost institutions. Centrally located in city and convenient to outstanding residential and shopping facilities. Contact Personnel Director, Milwaukee Hospital, 2200 W. Kilbourn Ave., Milwaukee 3, Wisconsin.

PHYSICAL THERAPY POSITIONS available in Institute Departments located in three Peoria hospitals. Excellent education opportunities, both clinical and didactic. Three weeks vacation per year, sick leave, insurance benefits, 6½ holidays per year. Complete physical medicine and rehabilitation program under supervision of physiatrist. Progressive salary scale commensurate with experience and meritorious service. Apply Medical Director, Institute of Physical Medicine and Rehabilitation, 619 N.E. Glen Oak Avenue, Peoria, Ill.

PHYSICAL THERAPIST—for a four year old C. P. Center; starting salary $5,000-$5,500, up, plus increments, depending on training and experience. Prefer special training and/or experience in C.P.; if not C.P. trained or experienced, opportunity available for advanced training in C. P. with pay. Apply Mrs. S. L. Zieve, Coordinator, Cerebral Palsy Center, P.O. Box 294, Elyria, Ohio.

WANTED—Registered physical therapist, male or female. Four doctor orthopaedic clinic with separate PT Department. Write for details to M.K. Nusbaum, Mgr., 2609 Fairfield, Fort Wayne, Ind.

ASSISTANT CHIEF PHYSICAL THERAPIST—Immediate vacancy in modern 500-bed general non-profit hospital. Work primarily with acute, short-term patients. Male or female. Five-day, 40-hour week. Paid vacation, accumulative paid sick leave, numerous other benefits. Salary is open, $5,000 yearly is minimum. Will consider recent graduate. Ability to handle administrative and supervisory responsibilities. Apply: Director of personnel, Aultman Hospital, Canton, Ohio.

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WANTED—Three physical therapists, male or female, for outpatient center with a general rehabilitation program. Excellent facilities and equipment. Salary range $4,800-$6,600 per annum. Three weeks paid vacation and sick leave. Forty hour, 5-day week. For further information write G. Margaret Gleave, Executive Director, The Curative Workshop of Racine, 2335 Northwestern Ave., Racine, Wisconsin.

REGISTERED PHYSICAL THERAPIST—For staff position. Salary $4,500 to $5,400. Excellent personnel policies. Crossroads Rehabilitation Center is one of the largest community centers in America. It is in a new, modern air-conditioned building. Indianapolis is a thriving, growing city with many educational, recreational and cultural opportunities. Please call Dr. Roy E. Patton collect WAlnut 6-2481 or write 3242 Sutherland Avenue, Indianapolis 5, Ind.

PHYSICAL THERAPIST—Wanted for well established fully equipped department in a 232-bed county-owned medical care facility, where emphasis is placed on the chronic-long-term illness and geriatric patient. Opportunity to gain supervisory experience in an advanced rehabilitation program. Health team participation. Forty hours. Starting salary $4,771 with regular merit increases, insurance, retirement plan, paid vacation and sick leave. Contact Mr. B. Latt, M.S., Administrator, Maple Grove Medical Care Facility, 2000 32nd St., S.E., Grand Rapids 8, Michigan.

PHYSICAL THERAPIST—Registered, for 272-bed 62-bassinet general hospital. Five-day, 40-hour week, liberal personnel policies, good salary and benefits. Convenient location, excellent working conditions. Apply Personnel Director, Lakewood Hospital, Lakewood 7, Ohio.

WANTED—Registered physical therapist; 455-bed general hospital adjacent to college campus. Inpatient and outpatient daily load approximately 50. Fringe benefits: vacation, sick pay, health insurance, retirement plan, Social Security and annual physical. Attractive salary. Apply: Personnel office, Ball Memorial Hospital, Muncie, Ind.

WANTED—Registered physical therapists to work with an agency offering a program of comprehensive nursing care and rehabilitation. Will work with a staff of 9 physical therapists, and will have opportunities for informal teaching and care for patients in the home. Liberal personnel policies with salary based on experience. Apply to Executive Director, Visiting Nurse Association, 59 E. Monroe St., Chicago 3, Ill.

WANTED

Registered experienced physical therapist for rehabilitation service with the Visiting Nurse Service of Madison, Wisconsin. Consultation and teaching of nursing staff as well as direct treatment of a variety of cases carried under medical prescription. Five day, 40-hour week, month's vacation, sick leave, holidays. Salary range $395-$420. Car necessary, generous reimbursement. Community offers educational and cultural opportunities. Apply: Miss Ruth E. TeLinde, Director, Visiting Nurse Service, 2059 Atwood Avenue, Madison, Wisconsin.

IMMEDIATE OPENING—Physical therapist. Opportunity to head growing department in chronic disease hospital. Program under supervision of board qualified physiatrist. Beginning salary, $5,200 to $7,200 depending on qualifications and experience. Contact Morley R. Wilson, Business Manager, Sunshine Hospital, 750 Fuller Ave., N.E., Grand Rapids, Michigan.

DIRECTOR OF PHYSICAL THERAPY—Salary range $6,000 to $7,500. Prefer masters degree. Supervisor physical therapy department, 5 registered physical therapists, student training program and research project. Personnel policies are excellent. Thirty-seven and a half hours per week. Crossroads is a comprehensive rehabilitation center located in a beautiful wooded area in a new modern air-conditioned building. Indianapolis is a thriving, rapidly growing city with many educational, cultural, and recreational opportunities. Call collect Dr. Roy E. Patton, WAlnut 6-2481, or write 3242 Sutherland Avenue, Indianapolis 5, Ind.

REGISTERED PHYSICAL THERAPIST—Male or female in newly organized P.T. Dept. in JCAH 78-bed hospital, located within 4 miles of University campus. Salary open. Usual increments, 40 hour week. Illinois Municipal retirement plan available. Apply Mr. J.R. Johnson, Adm., Sycamore Municipal Hospital, Sycamore, Ill.

WANTED—Chief therapist. Minimum three years experience under the registry. Salary open commensurate with experience and training. Sound personnel policies; well equipped; active physical therapy department; 180-bed hospital; college town; many recreational facilities both winter and summer. Apply: H. B. Lehwald, Administrator, St. Luke's Hospital, Marquette, Michigan.

PHYSICAL THERAPIST—Male or female. For 240-bed general hospital. Excellent physical facilities; variety of work. Salary dependent on education and experience. Must be licensed or about to secure license in Indiana. Apply to Arthur S. Malasto, Administrator, Porter Memorial Hospital, Valparaiso, Ind.

WANTED—Physical therapist for hospital in Cincinnati area. Full time steady position now open. Very good salary, plus other benefits. Box 2, Physical Therapy Review, 1790 Broadway, N. Y. 19, N. Y.

EAST SOUTH CENTRAL

PHYSICAL THERAPIST—Needed for 180-bed new, completely air-conditioned hospital. Starting salary $400 per month, excellent chance for advancement, 40 hour week, vacation, sick leave, insurance, retirement plan, and other benefits. Write or call Lester L. Tuck, Administrator, Singing River Hospital, Pascagoula, Miss.

WANTED—Qualified physical therapist for expanding outpatient rehabilitation center, treating both adults and children, 40 hours, 5 day week. Salary range $4,500 to $6,000. Contact L. O. Dees, Rehabilitation Center, 316 Longwood Drive, S. W., Huntsville, Alabama.

PHYSICAL THERAPIST—for department in 65-bed JCAH Hospital located on college campus, department established in Jan. 1960, all new equipment—very complete. Contact Administrator, Berea College Hospital, Berea, Kentucky.

WEST NORTH CENTRAL

PHYSICAL THERAPISTS—Beginning rate $5,040 per annum. Vacations, sick leave, holidays, insurance, professional laundry and other benefits. New 120-bed rehabilitation center offering complete services to rehab patients and patients from the Acute Adult and Children's wings of main hospital. Work under the direction of two physiatrists. Inquire Personnel Department, Iowa Methodist Hospital, Des Moines, Iowa.

WANTED—PHYSICAL THERAPISTS

For physical therapy department which is part of a general hospital in St. Louis, Mo. Service under the direction of a full time physiatrist. Good starting salary, fringe benefits, 40 hour week. Reply to: Box 1, Physical Therapy Review, 1790 Broadway, New York 19, New York.

CHIEF PHYSICAL THERAPISTS—Two vacancies. Job opportunities for you and one of your fellow registered physical therapists. Openings at two large, modern hospitals of the City of St. Louis. Active physical medicine programs. Excellent working conditions. Three weeks vacation, sick leave, eleven paid holidays, and pension plan. Write for further information, Mr. R. Elliott Scearce, Director of Personnel, 235 Municipal Courts Bldg., St. Louis 3, Mo.

REGISTERED PHYSICAL THERAPIST—Male, to associate with one other therapist; clinic and hospital work; excellent benefits; beginning salary $450 per month. Dakota Clinic, 1702 So. University Drive, Fargo, N. D.

INSTRUCTOR IN P.T. CURRICULUM—Immediate consideration of experienced qualified therapist with a master's degree, preferably in physiology. Write Miss B. Schulz, Dept. of P.T., Washington University School of Medicine, 660 S. Kingshighway, St. Louis 10, Mo.

WEST SOUTH CENTRAL

IMMEDIATE OPENING—Registered staff physical therapist for new, modern, well equipped and air-conditioned department. Two weeks vacation, sick pay, and malpractice insurance. 8 holidays plus week between Christmas and New Year. Salary: open dependent upon experience and qualifications with annual increments. Apply to: E. D. Jordan, Executive Director, Southwest Louisiana Rehabilitation Center, P.O. Box 2705, Lafayette, La.

MOUNTAIN STATES

PHYSICAL THERAPIST—Immediate opening in 160-bed general hospital in famous vacation area. Well established department. Write to Mr. Myron Redenius, St. Francis Hospital, Colorado Springs, Colo.

REGISTERED STAFF PHYSICAL THERAPIST—Female. General 200-bed J.C.A.H. hospital. No experience necessary. Excellent salary, 40 hour week, liberal fringe benefits. Paid vacation and sick leave, 7 paid holidays. Attractive nurses' home, room and board $43 monthly. Contact Administrative Assistant, Memorial Hospital, Cheyenne, Wyoming.

ARIZONA OPENING—As Staff Physical Therapist with twenty-three doctors in private medical clinic. Starting salary $350-$450, depending on experience. Write to Walter McCarrell, R.P.T., The Tucson Clinic, 116 North Tucson Boulevard, Tucson, Arizona.

PACIFIC

SAN DIEGO COUNTY CRIPPLED CHILDREN'S SERVICES

Graduates—Approved schools for Physical Therapy. Positions open in special schools for handicapped children. Starting salary $507; liberal employee benefits. Temporary appointment pending California registration. Write Dept. Civil Service and Personnel, Rm. 403, Civic Center, San Diego, Calif.

WORK IN SOUTHERN CALIFORNIA—Physical therapists needed to staff new rehabilitation service at Rancho Los Amigos Hospital. All aspects of rehabilitation of all age levels including postacute and convalescent care of respirator patients, general medical, and orthopedic disabilities and all aspects of bracing and prosthetics. In-service training program under direction of physical therapy instructor. Five-day 40 hour week, holidays, sick leave, vacation privileges, retirement benefits with Civil Service rights. New building and most modern equipment available. Quarters available, laundry furnished. Beginning salary $5,280, annual increases. Write Chief Physical Therapist, Rancho Los Amigos Hospital, Downey, California.

GRADUATES OF APPROVED SCHOOLS FOR PHYSICAL THERAPISTS: You may now practice under professional supervision in this State pending registration with the California Board of Medical Examiners. Positions open in State Hospitals, the Veterans Home, and special schools for handicapped children. Starting salary $458, higher in some locations; liberal employee benefits; promotional opportunities. Streamlined civil service examinations twice a month in San Francisco and Los Angeles, and on request in other states near candidate's residence. Write: State Personnel Board, 801 Capitol Avenue, PT 71, Sacramento 14, Calif.

ITINERANT ELKS THERAPIST—Alaska. Administrator Alaska State Elks Cerebral Palsy Program and serve as traveling therapist central Alaska. Will have two therapists under supervision. Must have training and experience in cerebral palsy work. Require APTA membership. Will travel out of Anchorage to Fairbanks, Seward, Homer, Valdez, Kodiak, Cordova by car and plane. Salary open but very adequate for Alaskan economy. Travel and car expenses in addition. Apply via air mail: Dr. Helen Dittman, Clinical Director, ACCA Treatment Center, 1020 I St., Anchorage, Alaska.

STAFF PHYSICAL THERAPISTS—For outpatient department under the direction of a physiatrist. Hollywood-Beverly Hills area. Must be registered and qualified for California State Registration. Excellent salary commensurate with experience. Automatic increase after three months. Forty hour, 5-day week. Paid sick leave, vacation and holidays. Additional benefits include complete health plan coverage and life insurance. Reply to: Doris M. Beswick, R.P.T., So. California Permanente Medical Group, 130 No. LaCienege Blvd., Los Angeles 46, California.

STAFF PHYSICAL THERAPIST—For 200-bed hospital with a wide case variety, excellent starting salary, 6-month increase; paid sick leave, vacations, holidays; broad medical coverage and laundry. Quarters available at nominal charge. Apply chief physical therapist, Santa Fe Hospital, 610 So. St. Louis St., Los Angeles 23, Calif.

PHYSICAL THERAPIST—Man or woman. Immediate opening available for applicant with California registration or eligibility. Salary to $425 depending upon experience. Forty hour week and liberal employee benefits. Send resume or apply in person to Personnel Director, Mercy Hospital, Hillcrest Drive, San Diego 3, California.

REGISTERED PHYSICAL THERAPIST—(man or woman) for 115-bed general hospital. Immediate opening; 5-day week, paid vacation, sick leave, 6 paid holidays. Salary dependent on experience. Must be eligible for California registration. Located resort coast village overlooking Pacific Ocean. Apply Personnel Manager, Scripps Memorial Hospital, LaJolla, California.

REGISTERED PHYSICAL THERAPIST—Accredited 221-bed hospital, 30-bed rehabilitation center, well equipped. Salary range $392 to $491; with experience starting salary $439, possibly $464. Living accommodations on grounds for single person, nominal charge. Vacation, sick leave, retirement. Apply Tulare-Kings Counties Hospital, Springville, California.

Classified Rates

Effective December 1, 1961

First line—$3.00; additional lines, $2.00 each.

Closing date for insertion and cancellation is *two* months preceding (copy received by April 10 will appear in June issue). Typewrite advertisement double-spaced on separate sheet; 50 letters and spaces per line. Advertisers may arrange for blind ad code number at additional charge of $2.00. All classified ads are payable in advance with checks or money orders to the American Physical Therapy Association, 1790 Broadway, New York 19, New York.

Important

The right to reject an ad or to change wording in accordance with Association and editorial policy is retained by the publisher. Institutions or agencies placing ads must identify the director (John Doe, M.D., Medical Director) in the content of the ad or in the covering correspondence.

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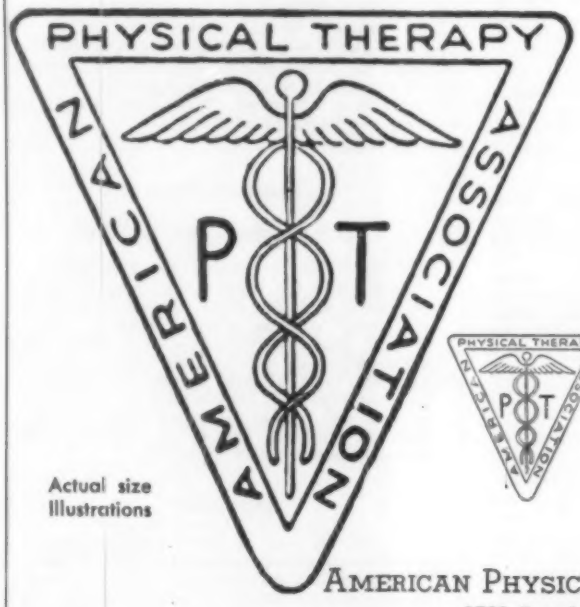

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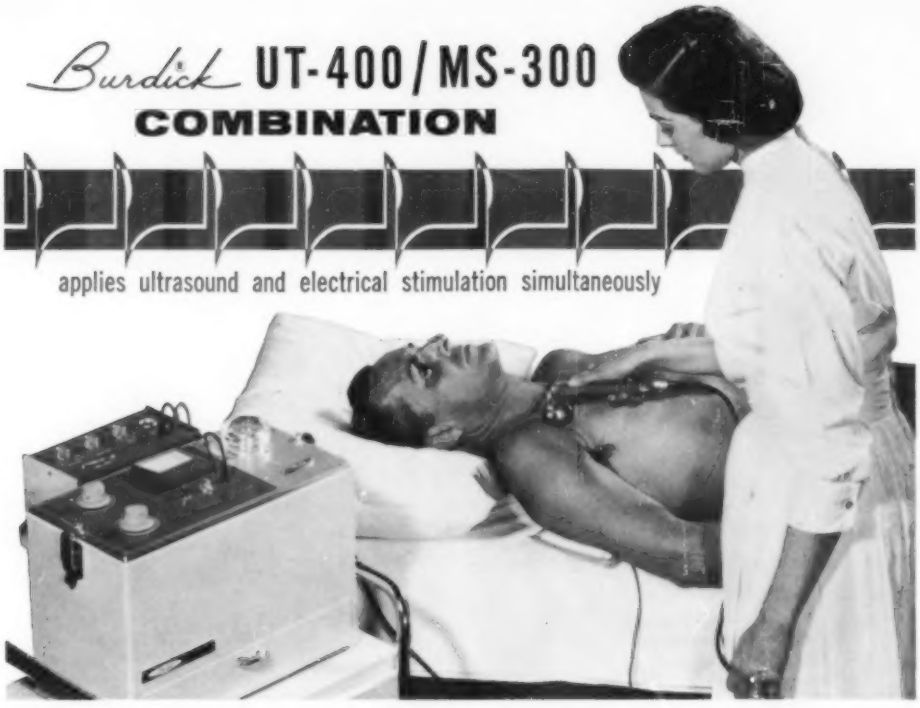

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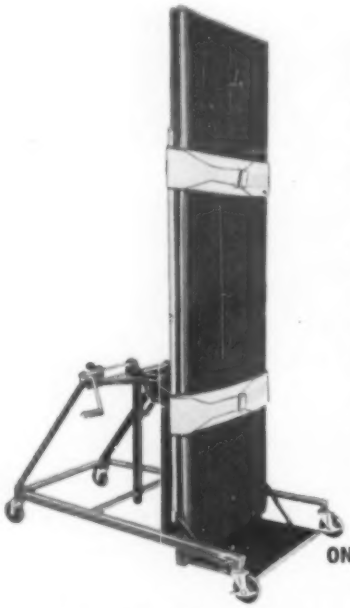
Preston Catalog Number 7194-U

This newly developed Standing and Treatment Table is manually operated by means of a hand crank. The sturdy base, constructed of angle iron, has a brown enamel crinkle-finish. The table top is 24" wide; 78" long; 32" high, and is upholstered with durable waterproof leatherette.



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EASE OF OPERATION—A special worm and gear arrangement permits tilting the table with minimum effort. The crank handle is near the top, obviating the need for the therapist's bending.

TILTS FROM HORIZONTAL TO VERTICAL position (from 0—90 degrees). Locks automatically at any desired angle.

EASY PASSAGE through narrow doorways and corridors. Over-all width held down to 29".

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EASILY MOVED with its four large 4" ball bearing swivel casters, two of which have step-on brakes.

COMFORT TO PATIENT is assured by upholstered top of durable waterproof leatherette. Footboard has a non-slip surface. Two heavy-duty restrainer straps hold patient securely on table. Square rails on each side of table permit placing restrainer straps or auxiliary equipment in any desired position.

PROTRACTOR to indicate degree of tilt from 0 to 90 degrees.

STORED IN SMALL SPACE—Requires only 29" x 44" for storage, with top in vertical position.

ONE YEAR GUARANTEE AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP

A *High Quality* TABLE AT AN *Economy Price!*

Designed for EASE OF OPERATION, COMPLETE SAFETY and SIMPLICITY, with a resultant LOWER PRICE THAN COMPARABLE UNITS.

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PC 7195S Additional Restrainer Straps 7.50
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